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HANEY'S TRADE MANUALS.

THE
HORSE SHOERS' MANUAL;

A PRACTICAL GUIDE TO

HORSE SHOEING IN ALL VARIETIES,

INCLUDING

PREPARATION OF FOOT, CHOICE AND PREPARA-
TION OF SHOES, FITTING, FILING, NAILING, &c.

TO WHICH IS ADDED

YOUATT'S CELEBRATED TREATISE

ON

DISEASES OF THE HORSE'S FOOT.

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New York:

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119 NASSAU STREET.

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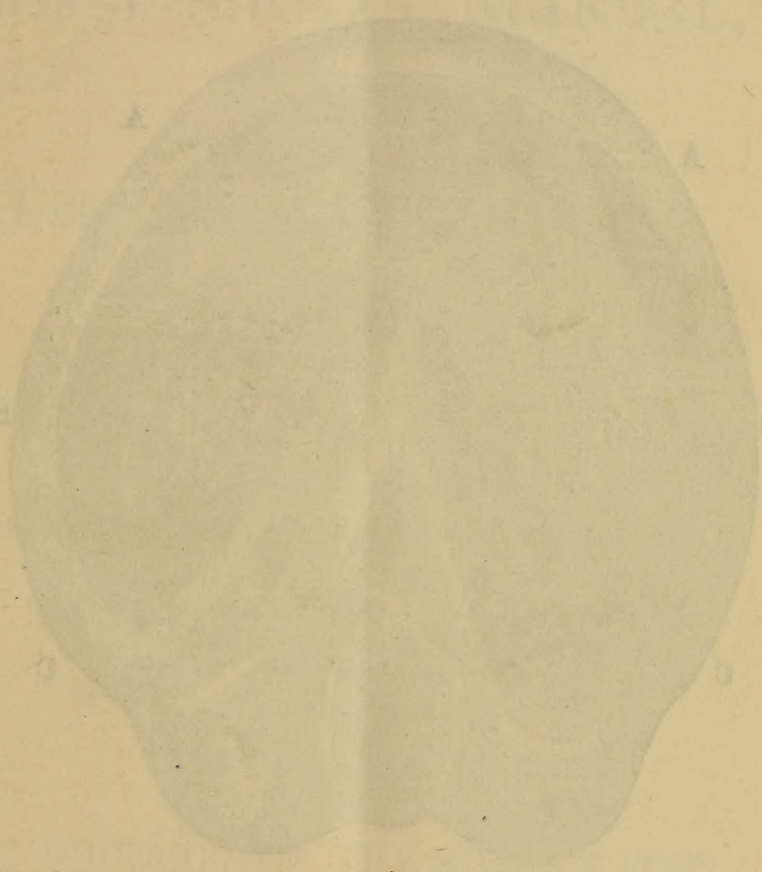
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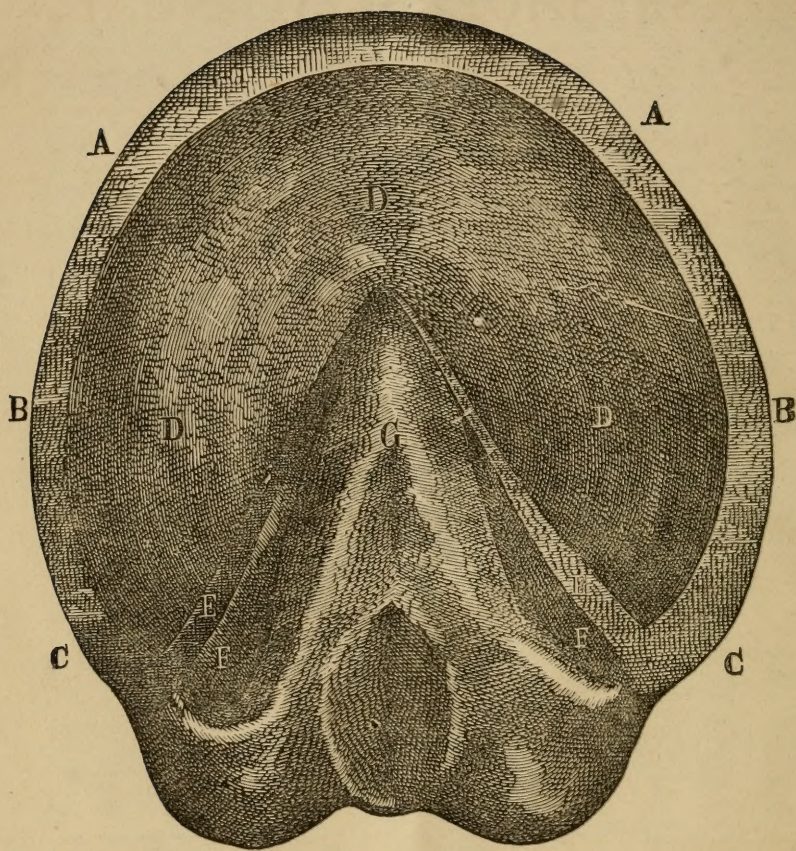


Fig. 1.—FORE FOOT, PARED OUT READY FOR SHOEING.

See Fifteenth Page.

HANEY'S

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PREFACE TO HORSE SHOERS' MANUAL.

WHILE it is the intention to have HANEY'S TRADE MANUALS mainly original, we do not propose to sacrifice merit to mere newness, and in some branches the best practical knowledge is to be derived from foreign sources. The present work gives the best possible details of the horse shoer's art, and while there are some local English allusions, even these are, in principle, valuable to Americans. Whether or not *all* the author's views are adopted, as regards the three and five nails, for instance, by the reader he will find *few* things to take exception at, and these may result from individual tastes or circumstances. The treatise on Diseases of the Horse's Foot which is appended, will be found useful in many cases, and will doubtless prove acceptable in this cheap, convenient form.

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HORSE SHOERS' MANUAL.

HORSE SHOES IN HISTORY.

The Romans shod their horses, though not in the same way as we do. Their pedillum* lapped over, and therefore occasioned a rattling sound. Winckelmann has published a drawing of a Roman gem, showing one man holding up the foot of a horse, and another man shoeing it. An iron horse-shoe is mentioned by Appian; but shoes (*carbatinæ*) made of raw hides were, as Aristotle and Pliny attest, put upon camels in the time of war and during long journeys. Nero is said, by Suetonius, to have shod his mules with silver. Pliny records of Poppæa, the empress of Nero, that she used gold for the same purpose. These shoes had probably the upper part only formed of the precious metals, or perhaps they were plated out of thin slips.

In the horseshoes found in the German barrows, says Fosbroke, the shoes project not downward, but upward. At Colney, in England, were found Roman urns, and a horse-shoe of uncommon form—round and broad in front, narrowing very much backward, and having its extreme ends almost brought close behind, and rather pointing inward, with the nail-holes still perfect. An early instance of nails in horseshoes is furnished by one of a horse buried with Childeric I., who died 481, which was fastened with nine nails (*Archæologia*, iii, 35). Du Cange and Carew mention the custom of shoeing only the fore-feet. La Brocquiere describes the oriental horseshoes as being very light, rather lengthened toward the heel, and thinner there than at the toe. They were not turned up, and had but four nail-holes,

*Shoe.

two upon each side. The nails were square, with a thick and heavy head.

The present mode of shoeing horses was introduced into England by the Normans, at the time of the conquest. The Britons had been taught the use of them by the Romans, but their pedolan were probably considered too clumsy to be adopted by the Saxons. The Franks in the ninth century, and probably also the Normans, shod their horses in winter only.

It may be mentioned, that the male horse only was ridden by knights and people of any distinction in the middle ages; and that to ride a mare was always looked upon as a degradation. This was either a religious superstition, or an old Teutonic prejudice. In the thirteenth century, horses were obtained from Turkey and Greece, and at a later period from Barbary. The lord rode the destrier, or war-horse; the lady, the palefroi, or palfrey; the servant, the roncín; and the luggage was carried by a sommier, or sumpter. White horses were most prized, after them dapple-gray, and bay or chestnut. It is curious to find that, in 1435, the queen of Navarre gave carrots to her horses. The ordinary price of horses in England, in the reign of Edward I., was from one to ten pounds. When St. Louis returned to France from his captivity, the abbot of Cluny presented to the king and queen each a horse, the value of which Joinville estimated at five hundred livres—equal to about four hundred pounds of the present English money. Feats of horsemanship were much practiced; one of these was to jump into the saddle in full armor:

No foot Fitzjames in stirrup staid,
No grasp upon the saddle laid,
But wreathed his left hand in the mane,
And lightly bounded from the plain.

Horses were frequently given as bribes. The widow of Herbert de Mesnil gave King John of England a palfrey to obtain the wardship of her children, and one Geoffrey Fitz-Richard gave the same monarch a palfrey for a concession in the forest of Beaulieu.

A large pitcher, ornamented with horseshoes, was found in a Norman pottery, discovered on the estate of Lord Scars-

dale, near Derby. It is figured in the reliquary, and is a very interesting example of the period. The decoration is the badge of the ancient lords of the soil on which the vessel was made, and it was probably designed for castle use. The badge is that of the family of Ferrars, earls of Derby, Ferrars, and Nottingham, who held Duffield castle from the time of Henry III., when the lands were confiscated.

In Lord Herbert's *Life of Henry VIII.*, we read that Henry "having feasted the ladies royally for divers days, did depart from Tournay to Lisle (October 13, 1513), whither he was invited by the Lady Margaret, who caused there a joust to be held in an extraordinary manner; the place being a large room, raised high from the ground by many steps, and paved with black square stones like marble; while the horses, to prevent slipping, were shod with felt or flocks (the Latin words are *feltro sive tomento*), after which the ladies danced all night." Shoeing with felt is mentioned by Shakespeare.

Aubrey, in his *Miscellanies*, says: "Under the porch of Staninfield Church, in Suffolk, I saw a tile with a horseshoe upon it, placed there to hinder the power of witches, though one would imagine that the holy water would have been sufficient." The charm of the horseshoe lies in its being forked, and presenting two points. Thus Herrick, in his *Hesperides*, says:

Hang up hooks and sheers, to scare
Hence the hag that rides the mare,
Till they be all over wet
With the mire and with the sweat;
This observed, the manes shall be
Of your horses all knot-free.

Even the two forefingers held out apart, are thought to avert the evil eye, or prevent the machinations of the lord and master of the nether world.

The pentacle, or seal of Solomon, is supposed to possess great power, as being composed of two triangles presenting six forked ends, and therefore called pentacle erroneously.

Mr. Timbs states, that when Monmouth street was a fashionable locality of London, it was noted for its number of horseshoes nailed over the doorways or on the sill. In 1813,

Sir Henry Ellis counted here seventeen; in 1841, there were six, but in 1852, there were eleven; now there are fewer. Nelson had great faith in the horseshoe, and one was nailed to the mast of the ship Victory. "Lucky Dr. James" attributed the success of his fever-powder to his finding a horseshoe, which he adopted as the crest upon his carriage. A horseshoe is very conspicuous at the gate of Meux's brewery, at the corner of Tottenham court road, and on the trappings of the horses of the establishment. The lucky belief in the horseshoe may have led to its having been adopted as the ornamental portion of a scarf-pin.

Messrs Larwood and Hotten, in their History of Sign-boards, state that the horseshoe by itself is comparatively a rare sign. The three horseshoes, however, are not uncommon; and the single shoe may be met with in many combinations, arising from the old belief in its lucky influences. The sun and horseshoe is still a public house sign in Great Litchfield street; and the magpie and horseshoe may be seen carved in wood in Fetter lane—the magpie perched within the horseshoe, and a bunch of grapes being suspended from it. Slight remains of this superstitious regard for the horseshoe are to be found here and there in the United States.

THEORY AND PRACTICE.

Before I enter on the subject of shoeing, I must notice two things, which we must not only believe, but act upon, if we ever hope to arrive at really good horseshoeing; the first is, that nature has given to what horsemen call a good shaped foot the form best suited to the horse's wants; and the second is, that the hoof expands, when the horse's weight is thrown upon it, and contracts, when it is taken off again; but the mere belief in these things will be of no use, unless we make the shoe to fit the foot, and nail it on in such a manner, as will allow the hoof to expand and contract; for we might as well not believe at all, as believe a thing to be right, and not do it.

Nailing an iron shoe to a living horse's foot is a very un-

natural thing to do, but, as it must be done, it is our duty to see how we can do it with the least damage to the horse. To show this, I will suppose myself addressing a young smith, who is about to shoe his first horse.

PREPARING THE FOOT.

You must begin by taking off one of the old shoes, and I say one, because the others should always be left on, for the horse to rest upon: all horses stand quieter on shod feet than they can on bare ones; and they are less likely to break the crust; many tender footed horses are in positive agony, when forced to rest on a bare foot, while the opposite one is held up, to be shod.

First raise all the clinches with the buffer, and if the shoe will not then come off easily, loosen some of the nails with the punch; but never tear the shoe off by main force; it splits the crust, widens the nail holes, and destroys the horn.

The shoe being off, you should rasp the edge of the hoof all round, and take out any stubs, that may be left in the crust. Then you must pare out the foot; and this requires both care and thought. If the horse has a strong foot with plenty of horn, you should shorten the toe, lower the heels and crust, and remove the dead horn from the sole, and also from the corners between the heels and the bars; the best way of doing this is to pare the bars down nearly level with the sole, and then you can get at the dead horn in the corners more easily. The part of the bar which stands up above the sole, would have been worn away, or broken down, if the shoe had not kept the hoof off the ground; therefore you had better always pare it down; but on no account ever cut anything away from the sides of the bars, nor, what is called, "open out the heels;" and be sure, that you never touch the frog with a knife. Now remember, that there are three things, which you must never do in paring out a foot; you must never cut the sides of the bars, nor open out the heels, nor pare the frog; and I will tell you why you must never do them.

The bars are placed where they are, to keep the heels from closing in upon the frog, and if you thin them by cutting their sides, you weaken them, and they can no longer do it, and the foot begins to contract.

Opening out the heels does exactly the same thing by weakening the very parts which nature placed there, to keep the heels apart. It takes some time to contract a horse's foot so much as to lame him; and because the contraction comes on by slow degrees, no one notices it, until the horse falls lame, and then every one wonders what can have done it; but very few hit upon the right cause.

The frog is a thick, springy cushion, whose chief use is to protect a very important joint, called the navicular joint, and it is covered by a thin layer of horn, which keeps in the moisture; and every time you slice off any of the frog, you lay bare a part that was never meant to be exposed to the air, and it dries, and cracks, and forms rags; and if these rags are cut off at every fresh shoeing, the whole frog becomes as dry and hard as a board; and the horse gets an incurable disease, called "navicular disease;" therefore I say, leave the frog alone; it will never grow too large; for long before that would happen, the outer covering will shell off, and a new, horny covering will be found underneath; and as to the rags, leave them alone also, and they will fall off of themselves.

A weak, flat foot will bear very little paring, or rasping; the crust of such a foot is sure to be thin at the toe, and low at the heels, with a thin and weak sole; therefore the less you do to it the better, beyond making the crust level, where it is to bear upon the shoe; this must be done to all feet, and as the inner quarter, where there should be no nails, does not wear away as fast as the outer quarter, where the nails are driven, you should always place a rasp upon its edge across the foot, to be quite sure that the two sides are level. I have known shoes lost from the inside quarter being higher, than the outside; which caused the foot to bear unevenly on the shoe.

Before you pare out a foot, you should always think of the state of the roads, and if they are dry, and covered with loose stones, or have been lately repaired, you should take

very little off the sole of any foot because, if you thin it the stones will bruise it, but when the season is wet, and the stones worn in, you may pare the sole of a strong foot a little, until it will yield in a very slight degree to the heaviest pressure you can make upon it with your thumbs; but you must never pare it thin enough to yield to less pressure than the very heaviest you can bring to bear upon it.

Fig. 1 shows a good shaped near fore foot pared out ready for shoeing. I have placed letters against the different parts. The toe reaches from A to A, the letter B shows the middle of each quarter, and C marks the heels. You will observe that the crust is thicker on the outer quarter, where the nails should be, than it is on the inner quarter, where a nail must never be driven; and you will also see that the hoof is not a circle, as many persons suppose it to be, but is straighter on the inside, than it is on the outside. D marks the sole, E shows the upper parts of the bars pared down nearly level with the sole. F shows that part which must never be touched by a knife, G marks the frog, and is placed just over the situation of the navicular joint. I would advise you to examine this frog well, because it is, what every horse's frog should look like, plump, full and even, with a broad, shallow cleft, not split through at the back part; and if you shoe your horses properly, and never pare the frog, it is what their frogs will come to in time.

THE SHOE.

Before I talk about the shoe, I must settle names for the upper and under surfaces; because I fear I should mislead those who are not smiths, if I call the part that rests upon the ground "the upper surface," as smiths do; I shall therefore call that part of the shoe "the ground surface;" and the part which goes next the foot I shall call "the foot surface;" and then there can be no mistake as to which surface I mean.

In turning your store shoes "in the rough," you should

leave them longer at the heels, than smiths generally do; we shall see the reason for it, when we come to "fitting the shoe;" and you should make the web as wide at the heels as it is at the toe, and of the same thickness throughout from the toe back to the heels. The "fuller" should be carried quite round then to the heels, and the fullering iron should have both sides alike. It is a far better tool than the one-sided iron in common use, which is generally so narrow and sharp, that it not only makes the groove too small for the heads of the nails to sink into, but it often splits the shoe. A narrow groove may look neater than a wide one; but you will find a wide one much more useful.



Fig. 2.

CHOOSING A SHOE.

The first thing to look to in choosing a shoe is the kind of foot you have to deal with. If the foot be a strong, good shaped one, it will be an easy matter to find a shoe for it; only be sure to take great care that the web is not too narrow, and that the shoe is not too light. A light shoe is apt to bend, before it is half worn out; and the pain, caused by the pressure of the bent nails against the tender lining of the hoof throws the horse down, and most likely breaks his knees. If the foot should be flat with a weak, brittle crust, you must still choose a stout shoe; for a horse with such a foot could not go at all on a bent shoe; and the shoe must have a wide web, because the sole is sure to be thin, and will need plenty of cover to protect it.

You must also look at the seating, for, if the foot is weak and flat, the shoe must be well seated out, to prevent its pressing upon and bruising the sole; but, if the foot is strong, and the sole arched, there need not be more seating than will allow the point of a picker to pass freely round between

the sole and the shoe ; otherwise dirt and small stones will get in, and bruise the sole as much as the shoe would do, if it pressed upon it.

CUTTING OFF THE HEELS.



Fig. 3.

Having fixed on a shoe to your mind, begin by cutting off the heels ; and you will find a half round chisel a better tool for the purpose, than a straight one, because you should never cut them off square, if you do, you will find it impossible to fit the shoe properly to the heels, and at the same time keep the web as wide at the heels, as it is at the toe ; for one of the corners of the shoe will be sticking into the frog, while the other stands out beyond the crust ; but, if you cut them off as shown in Fig. 4 you will have no difficulty in bringing every part of the shoe into its proper place on the foot. Fig. 1 is a shoe turned in the rough ; and the dotted lines show the direction, in which the heels should be cut off. The side next the frog should be cut off from C to B, and the outer corner from A to B, and then the shoe will look like Fig. 5, which with a little hammering over the beak of the anvil will soon come like Fig. 6 ; you will see that the points marked A in Fig. 5 have disappeared in Fig 6, and that the parts between A and B on each side have become a portion of the outer rim of the shoe ; whereby the outer rim is lengthened and the inner rim shortened ; and there are no corners left to prevent your fitting the shoe to the exact sweep of the crust at the heels, and you are also enabled to keep the web as wide at the heels as it is at the toe. I have introduced Fig. 6 in this place, because it gave me the opportunity of explaining the reason for cutting off the heels, as I have directed ; but at this stage of the business it is a good plan always to

leave the quarters and heels rather straight and wide apart, until you have fitted the toe; because it is less trouble to bring them in, than it is to open them out, after the front has been fitted.

THE NAIL HOLES.

You must next open the nail holes; but be sure that they have been stamped so as to pass straight through the shoe,

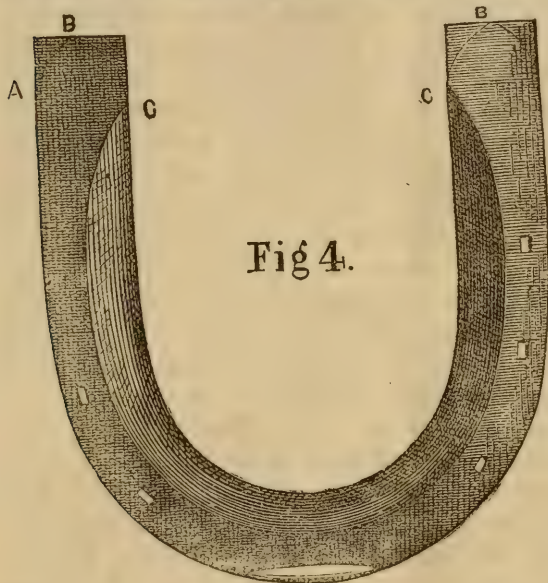


Fig 4.

shoe, and come out on the foot surface in the flat part of the web, and not partly in the flat and partly in the seating. It is a very bad plan to make them slant inward as most smiths do; for in driving a nail, they have first to pitch the point inward, then turn it outward, driving it all the time with the

grain of the crust, and at last they bring it out high up in the thinnest part of the hoof, and have the weakest part of the nail for a clinch. Now, instead of all this, if you make the holes straight through the shoe, you have only to drive the nail straight, and it will go through the shoe across the grain of the crust, and come out low down in the thickest part of the hoof, and give you a strong clinch, made out of the shank of the nail, instead of a weak one made out of the point. The advantage of straight holing is, that you are sure never to prick the foot in driving a nail, and you get a

firmer hold for the shoe ; every body knows, that a short purchase across the line of the strain is stronger than a longer one in the direction of the strain.

The soundness of the horse's foot, so far as shoeing is concerned, depends more upon the number of nails, and where they are placed, than upon anything else ; for, if the shoe is ever so badly formed

and the nail holes are rightly placed, very little harm will happen to the foot beyond the loss of a shoe ; but, if the shoe is of the best possible shape, and fitted to the foot in the most perfect manner, unless the nail holes are placed so that the foot can expand it must in the end become unsound. The portion of hoof which expands the most is the inner quarter and heel ; you must therefore leave those parts free from nails ; and the way to do it is never

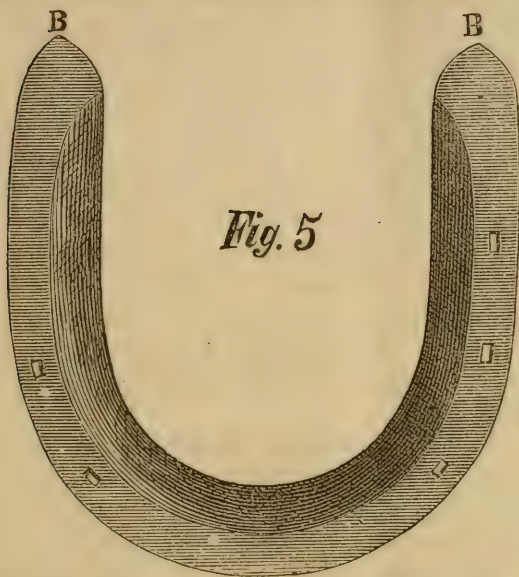


Fig. 5

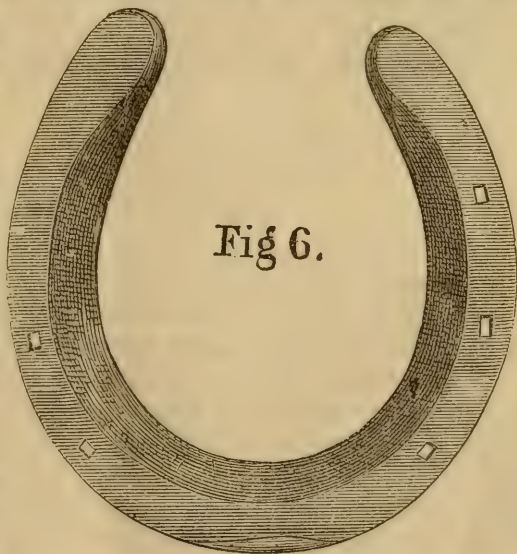


Fig 6.

to stamp more than two holes on the inside of the shoe, one about an inch and a quarter from the center of the toe, and the other about three quarters of an inch behind it. It is quite clear that if you nail both sides of a horse's hoof to an iron shoe, the hoof will be held fast and cannot expand; and when the horse's weight forces the bones of the foot into the hoof the tender lining of the hoof will be squeezed against the shanks of the nails, and cause pain to the horse at every step he takes. The whole number of nail holes should never exceed five; three on the outside and two on the inside. I have proved over and over again, that five nails will hold on a fore shoe at any kind of work, in any country, and at any pace. When a shoe is properly fitted to the foot, and fastened by five nails, nothing but the smith's pincers can pull it off.

Having cut off the heels, and opened the nail holes, you must next turn up a clip at the toe; every shoe should have one at the toe, it keeps the shoe steady, and prevents its being forced back; but you should never put one at either side, for if it were put on the inside, it would prevent the hoof expanding; and on the outside it is worse than useless, for the nails there are quite sufficient to keep the shoe from working across the foot, and the clip will interfere with the placing of one of the nails, and will destroy more of the crust, than two nails would have done.

FITTING THE SHOE.

You must always bear in mind, that "fitting the shoe" means fitting the shoe to the foot, and not fitting the foot to the shoe, as is too often done in many forges.

It is a bad plan for a beginner to try to fit the whole of the shoe at once; it is much better, until you have had a good deal of practice, to fit the toe first, then the quarters, and lastly the heels; but, before you begin to fit the toe, take a look at the old shoe, and see how much of the toe of it is worn away; because just so much of the new shoe

should be turned up from the ground, to remove it out of the line of wear.

We all know that horses go better and stumble less in old shoes than they do in new ones, and the reason why they do so, is, because they have worn away the toe, and no longer jar the foot by striking the toe against hard substances in the road. A new shoe turned up at the toe, is the same thing to the horse as an old one worn down; but with this great difference to his comfort, that he is easy upon the new one from the time it is first put on, whereas he was never easy upon the old one, until he had worn away the toe.

When a horse wears his shoe hard at the toe, it is the custom of most smiths to weld a lump of steel on to it, to make him longer in wearing it away; but this only increases the jar to his foot; whereas turning up the toe makes the shoes last quite as long, and saves the horse from a great deal of unnecessary suffering. A strong foot will bear the toe to be turned up a good deal; but a flat foot is always weak at the toe, and cannot bear the removal of any of the horn from it; the best way therefore of dealing with a very flat foot is to fit the shoe to it without turning up the toe, then to make the toe of the shoe red hot, and place it in the vice with the ground surface toward you, and in that position rasp the iron away from that part of the toe, which would have rested on the ground; the horse will travel safer and better for it, and the loss of a little iron from the toe will not cause the shoe to wear out faster; for a flat-footed horse will generally wear away the heels of a shoe long before he has worn out the toe.

You can make a very handy tool for turning up the toe of a shoe by "shutting" a piece of iron five inches long and one inch broad, crosswise on to each blade of a pair of smith's tongs; with this tool you will be able to grasp both limbs of the shoe at once, and not only turn up the toe over the end of the anvil, but restore the seating at the toe without bending the shoe, or putting it out of shape; which you could not do without a great deal of trouble by holding one limb at a time in common tongs. The accompanying figure shows you this tool in use with the ground surface of

the shoe uppermost, for turning up the toe, and you have only to reverse it, keeping the same grasp of the shoe, and the foot surface will come uppermost, ready to have the seating made good.

I will now suppose that you have turned up the toe of the shoe, shortened the toe of the hoof, rasped the crust, to receive the turned up shoe, and cut a notch for the clip; you had better next, until you have gained experience in fitting a shoe, "spring" the heels, to prevent their burning

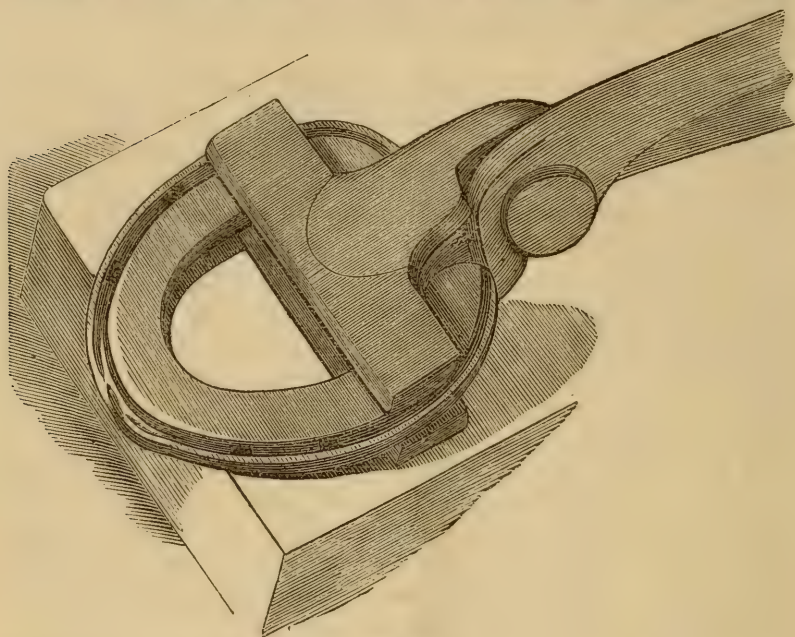


Fig. 7.

the back part of the crust, while you are fitting the shoe to the fore part; but you must bring them down again, before you fit the quarters and heels, and never leave them "sprung" when the shoe is nailed on.

You must now put the toe of the shoe in the fire, and make it hot enough to mark the uneven portions of horn, which should be lightly removed by the rasp, until an even bed is left for the shoe to rest upon. You need not fear to burn the toe of a strong foot; it can do no harm; but a

weak foot with a thin crust of course will not bear much burning, still the shoe should be made hot enough to scorch the horn, and show where the hoof fails to bear upon it.

When the toe is once properly fitted, there will be very little trouble in fitting the quarters and heels; you have only to bring them in over the beak of the anvil, until the edge of the shoe ranges with the edge of the hoof back to the furthest point of the heel on each side, and continue the same sweep, until it nearly touches the frog; there must be none of the shoe left sticking out beyond the hoof either behind, or at the sides of the heels.

I know that a great many smiths are very fond of what are called "opened heeled shoes," which means shoes with straight heels, wide apart, and projecting beyond the hoof both behind and at the sides; and the only reason I have ever heard in favor of such shoes is a very bad one, viz.: that the horse requires more support at the heels, than he gets from the hoof; but you may depend upon it, that nature has made no mistake about it; and if the horse really wanted more support, than he gets from the heels of the hoof, he would have had it; but I think I shall prove that this kind of shoe instead of being a benefit to the horse is a positive evil to him; it interferes with his action, and exposes his sole and frog to serious injury from stones in the road; and the projecting portions of the shoe become ledges, for stiff ground to cling to, and pull the shoe off. More shoes are lost through these mischievous projections at the heels, than from all other causes put together.

Let us see how it is that these projecting heels interfere with the horse's action. It is not necessary for this purpose to trouble you with the anatomy of the foot, but merely to state that all its parts are joined to each other in such a manner as to form one great spring, and that the foot is joined to the leg by the pastern and coronet bones in a direction slanting forward, which brings the foot a little in advance of the leg, and places the heels in front of a line, dropped from the center of the fetlock joint to the ground.

- 1 The shank or cannon bone.

- 2 The pastern bone.

- 3 The coronet bone.

4 The sessamoid bone.

A. The point where the weight of the horse would fall on the upper end of the pastern bone.

B. The point where a line dropped from A would meet the ground.

C. The heel of the hoof.

Now it is clear that the weight of the horse will fall upon the upper end of this slanting pastern bone at every step, and the bone having a joint at each end of it will sink to the weight thus thrown upon it, and break the force of the shock both to the leg and foot; but, if the heels of the shoe are longer than the heels of the hoof, the projecting pieces of iron will meet the ground further back than natural heels would have done, and will check the sinking of the pastern bone just as an upright pastern does, by bringing the heels too much under the center of the weight, which causes the horse to step short and go stumpy.

If you wish to avoid these evils and keep the horse's shoes on his feet, you must bring in the heels, and let the shoe strictly follow the form of the foot, whatever that form may be.

The part of the foot that needs protection from injury more than any other, is the "navicular joint," which rests upon the frog about an inch, or an inch and a quarter behind its point; and the only way to protect it is to keep the web of the shoe as wide at the heels as it is at the toe, and to bring in the heels until they nearly touch the frog; by so doing you lessen the opening of the shoe, and the web of one side or the other will strike upon the stones in the road and save the frog from coming with full force upon them. But open-heeled shoes leave the frog entirely exposed to very large stones and are the cause of many a severe bruise

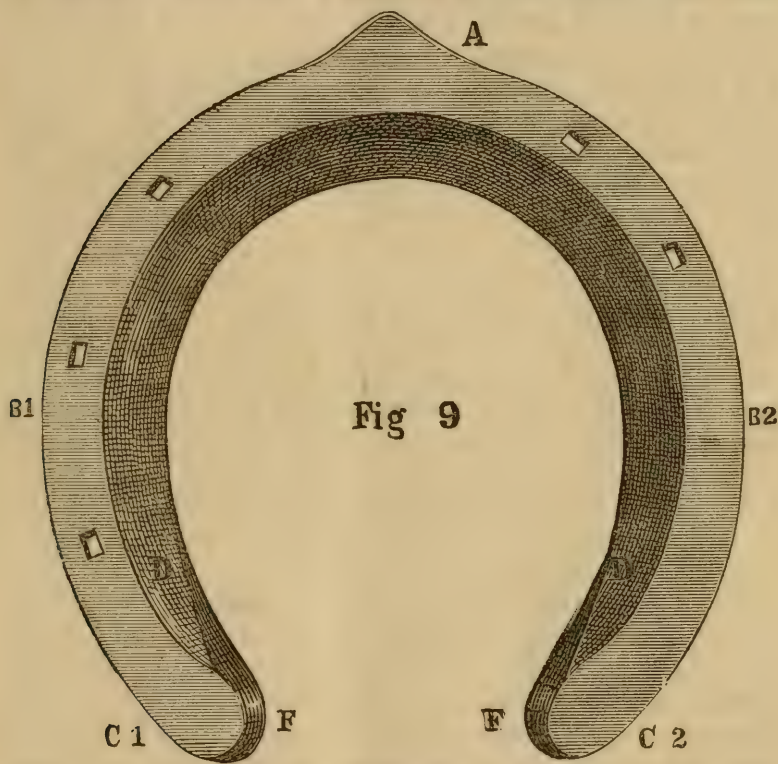


Fig. 8.

to the navicular joint, which lays the foundation of future incurable lameness.

I have often seen shoes so wide at the heels, that I have placed my clinched hand within the opening of the shoe without touching either side of it ; and where my fist could go a stone as large could go.

Another great advantage of bringing in the heels and



fitting the shoe close is the certainty that the horse will not cast his shoe ; you leave nothing for stiff ground to lay hold of, and if you slightly bevel the inside quarter and heel of the shoe from the foot downward, as is sometimes done to prevent a horse cutting, no ground in the world can pull it off ; for the foot expanding to the weight of the horse, enlarges the hole made by the shoe, and leaves more space for the shoe to come out of, than it made for itself to go in at ;

but, if the shoe projects beyond the hoof at any part, and more particularly at the heels, the foot cannot fill the hole made by the shoe, and stiff clay will cling round the projection and pull the shoe off.

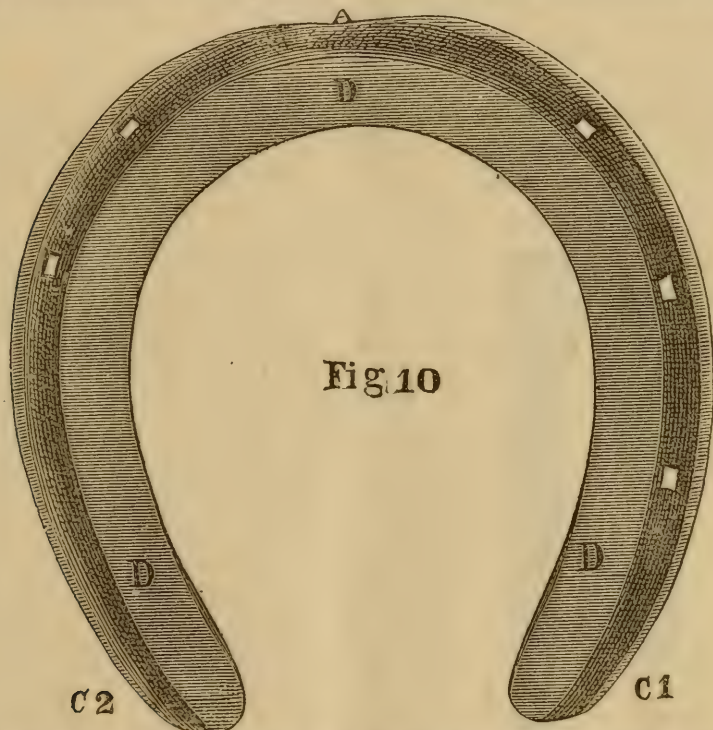
Having so far finished the shoe, place it on the face of the anvil with the toe hanging over the side, and see that the foot surface of the quarters and heels are quite level; then make it hot enough to scorch the hoof all round and form a bed for itself; without this it would be next to impossible to insure close fitting, for after you have made the foot as level as you can with the rasp, and the shoe as level as you can on the anvil, the chances are very much against their fitting like two planed boards, as they ought to do; and the quantity of horn to be thus removed is so small as not to be worth thinking about. It is a mistake to suppose that a hot shoe injures the hoof; it does nothing of the kind, and you cannot possibly fit a shoe properly without making it hot. I would not have you burn a shoe into its place on the foot before you had taken care to make both the foot and the shoe as level as you could, but when you have done that, the small quantity of burning that is necessary to make them come close together can do no harm. I have said before that a weak thin crust will not bear as much heat as a strong one, and that the shoe should be applied less hot to it, nevertheless it must be scorched that you may be sure the shoe fits properly.

When you have cooled the shoe, you should "back hole" it, that is, make free openings on the foot surface for the nails to pass through; and these openings should be large enough to take the shanks of the nails and not merely the thin part toward their points, and mind that in opening them you do not make the holes incline inward, but take great care to make them pass straight through the shoe.

Before you "file up" the shoe, hold it firmly in its place on the foot with both hands, and examine carefully whether any light appears between the foot and the shoe, and if you should perceive any, alter the shoe at once; for the crust must bear upon the shoe all round before you can say that the shoe fits the foot as it ought to do.

FILING UP THE SHOE.

Much time is often wasted in polishing the shoe with the file before it is nailed on ; but all that is really needed is to remove the burs about the nail holes, file off the sharp edges of the shoe and round the heels, taking care to apply the file hard to that part of both heels which comes next



to the frog, so as to slant it from the ground upward away from the frog, but you must be careful not to make the ground surface of the web at the heels narrower in so doing ; Fig. 9 shows the foot surface, and Fig. 10 the ground surface of a near fore shoe.

In Fig. 9 A is the clip at the toe, B 1 the outer quarter, B 2 the inner quarter, C 1 the outer heel, C 2 the inner heel, D the seating, E the flat surface for the crust to bear upon, F the heels beveled off away from the frog.

In Fig. 10 A is the toe turned up out of the line of wear, B 1 the outer and B 2 the inner quarter, C 1 the outer and C 2 the inner heels, D the ground surface of the web, as wide at the heel as it is at the toe, E the fuller carried all round the shoe, F the inner quarter and heel slightly beveled from the foot to the ground.

NAILS.

I must say a few words about the nails before we come to nailing on the shoe, because the nails in common use, Fig. 11, are as badly formed as they well can be; their short wedge-shaped heads, wide at the top, *a*, and narrow

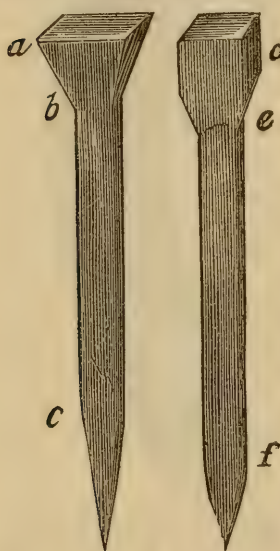


Fig. 11. Fig. 12.

at the bottom, *b*, with shanks springing suddenly from the head without any shoulder and ending in a long, narrow point, *c*, are most unsafe to trust a shoe to. The head of such a nail can never perfectly fill the hole in the shoe, for the wide top gets tied either in the fuller or the upper part of the hole before the lower part has reached the bottom, and when the shoe is about half worn out the head of the nail is gone and the shank alone is left in the hole to keep the shoe on. Now the nails I advise you to use, and you had better always make them for yourself, Fig. 12, should have heads which are straight sided at the upper part, *d*, and gradually die away at the lower part into the shank so as to form a shoulder, *e*, which will entirely block the bottom of the nail hole; the point *f* at the end of the shank should be short and broad to enable you to form good stout clinches, which will assist in keeping the shoe firmly in its place until it is quite worn out.

If you compare the head of the nail, Fig. 12, at *d* and *e* with the head of the nail Fig. 11 at *a* and *b*, you will at once see that the head of Fig. 12 is better calculated to fill every part of the nail hole than the head of Fig. 11 with its broad top and narrow neck could possibly do; and if you compare the points of the two nails at *f* and *c* you will readily perceive which promises the firmer clinch.

Your nails should be made of the very best nail rods you can get, and they should not be cooled too quickly, but left spread about to cool by degrees; the longer in reason they are cooling, the tougher they will become; they should not however be allowed to lie in a heap to cool, the mass keeps in the heat too long and makes them almost as brittle as if they had been cooled too suddenly.

NAILING ON THE SHOE.

If the nails are of a proper shape, the holes straight through the shoe, and the shoe fits the foot, it requires very little skill to nail it on; only put the point of the nail in the middle of the hole, keep the nail upright, and drive it straight, it must come out in the right place, low down in the crust, without the possibility of wounding the sensitive parts of the foot. The shank of the nail will pass straight through the substance of the crust, and gain a good, firm hold of it, leaving you the strongest part, from which to form a clinch. The clinches should be short and broad, and not thinned by rasping away any of their substance, but hammered at once into a slight notch made in the hoof under each; and the rasp should never be allowed to go over them after they have been hammered down, for the sharp steel rasp is almost sure to cut through the soft iron clinch just where it turns down and leave the appearance of a clinch, when in truth it has been cut off at the bend, and the loose end only remains buried in the notch in the hoof. You will do good by rasping below the clinches, because you will thereby remove the broken horn that the former nails have destroyed; but on no account ever use

the rasp above the clinches, if you do you will tear off the thin outer covering of the hoof which is placed there to prevent the escape of the natural moisture and to keep the horn tough, and if you rasp it away you will expose the horn to the air and it will soon become dry and brittle and make the hoof difficult to nail to. This thin covering of the hoof is like the shining covering of a man's finger nail ;

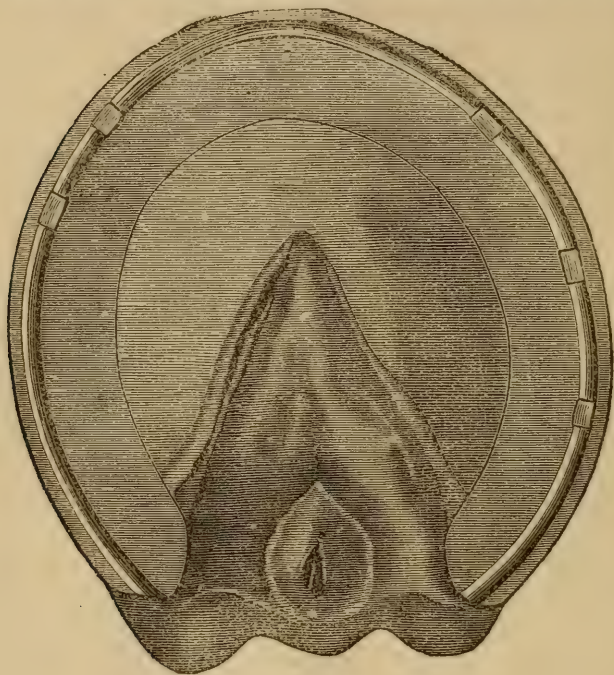


Fig. 13.

and most people know from experience how dry and brittle and easily broken a finger nail becomes when by accident it loses that covering.

Fig. 13 represents the ground surface of a near fore foot with the shoe nailed on by five nails, and shows how the shoe should look in its place on the foot ; Fig. 14 represents the same shoe made transparent, so that the parts of the foot that are covered by it are seen through it. A shows the crust B the bars, and C the heels of the hoof supported by the shoe. By this plan of shoeing the whole

of the inner quarter and heel are left free to expand, and I have invariably found in consequence of this freedom of expansion, that corns, however long they may have existed in the feet, disappear altogether after a horse has been shod a few times in this manner, and never return while the same plan of shoeing is continued.

I may here observe that the nature of a corn in a horse's



Fig. 14.

foot is very little understood. It is generally supposed to resemble a corn on a man's foot, and like it to be caused by pressure from a shoe, whereas it is a totally different thing, and is caused in a totally different manner. It is a bruise of the sensitive sole which lies above the horny sole, and is not caused by the heel of the shoe at all, but by the heel of the coffin bone which is forced into the hoof by the weight of the horse when in action, and as the hoof from bad shoeing is not able to expand and make room for it, some of the small blood vessels become wounded and the blood which escapes from them filters through the horny

sole and at last shows itself on its under surface at the corner of the inner heel, leading most persons to believe that the bruise began there, whereas in truth it ends there.

SHOEING WITH LEATHER.

Many tender footed horses travel best with a covering over the sole, and leather is commonly used for the purpose. In former editions of my book I recommended gutta percha and waterproofed felt as being far preferable to leather in consequence of their power of resisting wet, and thereby retaining their form under every change of circumstance; but I am sorry to say that the gutta percha of commerce is now so badly adulterated as to be utterly useless for horseshoeing purposes, and waterproofed felt, such as I formerly used, is no longer to be procured. I have endeavored to find some other substitute, but hitherto without success, and I am obliged to submit to using leather in spite of its defects, which are certainly great; for when it is wetted it becomes soft and heavy and yielding, but in drying again it contracts and hardens, causing frequent changes of pressure which are very undesirable qualities in the covering for a horse's frog; still whatever covering you use must be put on the same way, so I will at once tell you how to do it. You must fit the shoe to the foot with as much care as if nothing were to be put under it, and when it is filed up and ready to be put on, lay it with the foot surface downward on the covering whatever it may be, and mark the form of the shoe upon it with the end of the drawing knife, then cut the piece out, put it in its place upon the shoe and fix them both in the vice, which will hold them close together while you carefully cut the edge of the covering until it agrees with the edge of the shoe, then turn them in the vice together so as to bring the heels of the shoe uppermost, and cut out a piece from heel to heel, slightly curved downward in the center that nothing may be left projecting for the ground to lay hold of. The next thing to be done is to smear the whole of the under surface

of the foot with common tar mixed with a little grease, but be sure that you never use gas tar instead of the other, for it dries up the horn and makes it as hard as flint, whereas common tar keeps it moist and tough; then you must fill the hollow between the frog and the crust on both sides with oakum (which is better for the purpose than tow)



Fig. 15.

dipped in the tar, pressing it well into the hollow until the mass rises above the level of the frog on each side, but never put any oakum upon the frog itself excepting a piece in the cleft to prevent the dirt and girt working in; very little is ever wanted on the sole in front of the frog. The use of the oakum is to protect the foot, but more especially the navicular joint, which lies above and across the frog, from being jarred by stones on a hard road, and the best way of doing this is to fill the space on each side of the frog with oakum in such a manner that it shall share the pressure with the frog and prevent the full force of the shock from falling on the navicular joint.

The usual mode of stopping a foot is to place a thick wad of tow over the whole surface of the sole and frog, making bad worse by adding to the projection of the frog, and causing it to meet the ground sooner and receive the full force of the jar.

Fig. 15 shows a foot properly stopped and ready for shoe-

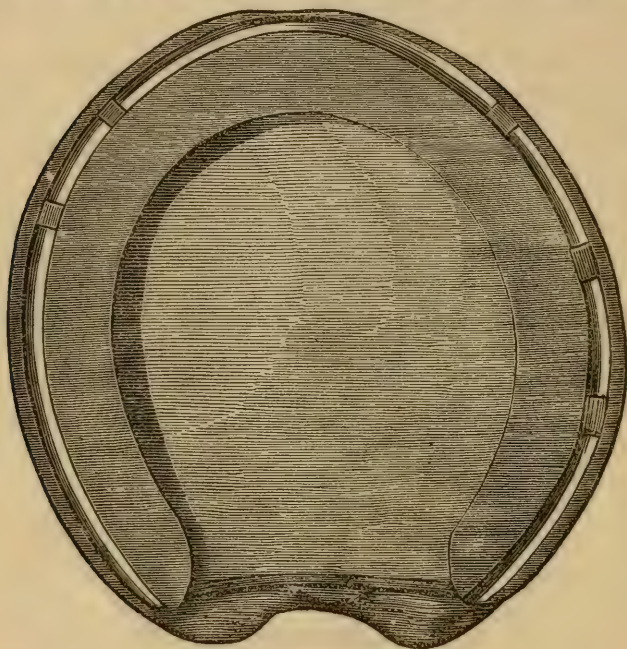


Fig. 16.

ing. The ends of the oakum that is placed in the cleft of the frog, are collected together and carried across the body of the frog, to be mixed with the oakum on one side, which keeps it in its place in the cleft and prevents it working out behind.

You must now nail on the shoe with five nails, exactly as you would do if there was nothing under it, and if you have attended to the fitting there will be no fear of the shoe shifting or coming off.

Fig. 16 shows a foot properly shod with leather, and also the shape to which the leather should be cut between the heels of the shoe.

THE HIND SHOE.

The hind shoe, like the fore shoe, should be brought in at the heels and be made to follow the exact shape of the hoof; but as the weight of the horse falls differently on the hind feet to what it does on the fore feet, and as the rider often obliges the horse to stop suddenly and without warning, when he is least prepared to do so, it becomes necessary to guard against strains of the hock and back sinews by raising the heels of the shoe, but this should be done in such a manner as will give both heels an even bearing on the ground. Calkins may be, and I believe are, useful to heavy draught horses, but they are objectionable for fast work; and turning down the outside heel alone should never be done, it throws the weight upon the inner quarter, which is the least able to bear it, and strains the fetlock joint. The plan I have adopted for many years is to have the last inch and a half toward the heel forged deeper and thicker than any other part of the shoe, the heels are then made red hot and the shoe is put in the vice with the hot heels projecting, which are beaten down with a hammer until they are about an inch long, and then the sides are made even and the foot and ground surfaces level on the anvil. I have found horses travel pleasanter and receive less damage to their hocks, back sinews and fetlock joints with these heels to their hind shoes than they have with any others that I have tried.

The toe of the hind shoe is exposed to great wear, and should be made stout and thick and rather pointed, with a small clip in the middle to prevent the shoe from being driven backward, and the back edge of the web should be rounded off to guard against over reach. The toe should rest fairly on the ground, to enable the horse to get a good purchase for throwing his weight forward. It is a bad plan to make the toe broad and to place clips at the side of it; it is nearly certain to cause the very evil it was intended to prevent, by making the horse "forge" as it is called.

Many persons think that "forging" is caused by the

front of the toe of the hind shoe striking against the heel of the fore shoe, but that is a mistake; the sound is produced in this way: when the horse raises his fore foot from the ground and does not instantly throw it forward but dwells in the action, the hind foot following quickly is forced into the opening of the fore shoe before the fore foot gets out of the way, and the corners of the broad toe, made still broader by the clips at the sides, are struck against the inner rim of the web of the fore shoe on each side just behind the quarters, and cause the unpleasant clicking sound. The way to avoid this disagreeable noise is to make the hind shoe narrow at the toe and rather pointed with a small clip in the center, and to leave the hoof projecting beyond the shoe across the toe; then the projecting horn of the hind foot will enter the opening of the fore shoe held up to receive it, and be stopped by the sole or frog before any part of the two shoes can come together, and the noise will cease.

I have said that you should round off the back edge of

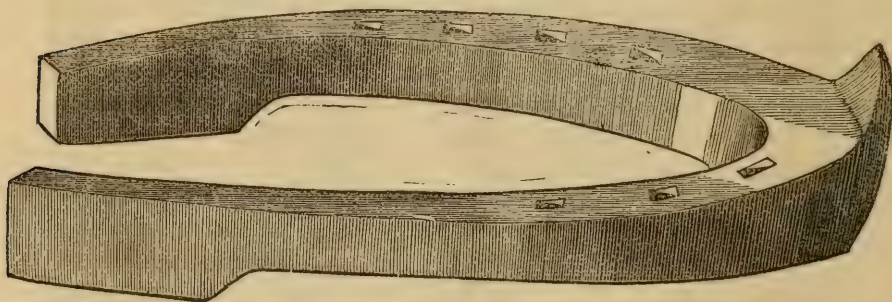
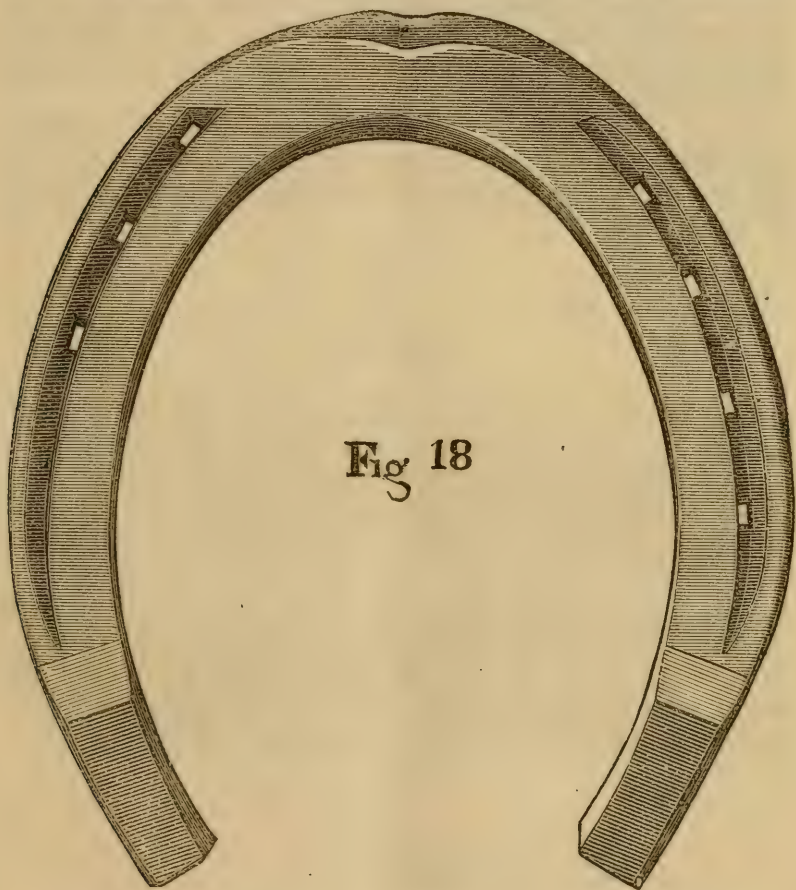


Fig. 17.

the web at the toe to prevent an over reach. It is commonly supposed that this also is done by the front of the toe, whereas it is always done by the back edge, which, in a well worn shoe, becomes as sharp as a knife. Now if the horse in galloping does not lift his fore foot from the ground and throw it forward in time to make way for the hind foot, the hind foot over reaches it and cuts a piece out of the soft parts above the heel and produces a very troublesome wound.

The hind foot expands less than the fore foot, still you should place the nail holes so as not to confine the foot. For some years I shod my light horses as an experiment with only six nails in each hind shoe, and I found it to answer very well for them, but six were not enough to prevent the hind shoes of my large carriage horses from occa-



sionally shifting on their feet; I therefore shod them with seven, and I recommend you as a general rule to put seven nails into the hind shoes of all hunters and other horses that are likely to be frequently called upon to exert the muscular powers of their hind quarters to their fullest ex-

tent. The holes on the inside should be stamped closer together than those on the outside, and they should be placed forward toward the toe so as leave the inside quarter and heel free to expand. A small foot can be safely shod with six nails, and no foot can ever require more than seven.

Fig. 17 represents the side view of a near hind shoe with the foot surface uppermost, showing a level portion for the crust to rest upon, the heels being raised in the manner I have described above, and the toe made stout and pointed with a small clip in the center.

Fig. 18 shows the ground surface of a near hind shoe with the toe rather pointed and the back edge rounded, and the nail holes properly placed when the foot is large enough to require seven.

CUTTING.

Horses strike their feet against the opposite leg in such a variety of ways both before and behind, that it is impossible to form a shoe that would suit every case of "cutting;" I therefore advise you, whether the horse cuts before or behind, to fasten something like a boot, covered thickly with wetted pipeclay, over the place where he strikes the leg, and then trot him along the road; he will soon pick off some of the pipeclay with the opposite foot, and show you the exact part of the shoe he strikes with, which you can easily alter in the new shoe; and you will often be surprised to see how small a matter causes the mischief.

REMOVING.

The time at which a horse's shoes should be removed, must depend very much upon circumstances. If a horse wears his shoes out in less than a month, they had better not be removed; and horses with thin, weak horn, which grows slowly, are likewise better left alone between each

shoeing, unless their shoes last seven or eight weeks, in which case they should be removed once within the time ; but horses with strong feet, and plenty of horn, that wear their shoes four or five weeks, should have them removed at the end of a fortnight ; and when the horses are doing so little work, or wear their shoes so lightly that they last over two months, they should be removed every two or three weeks, and at the second removal the shoes should be put in the fire, and refitted, or the feet will out-grow the shoes, as the horn grows much quicker when a horse is idle than it does when he is in full work.

Having now gone carefully through all the circumstances necessary to good shoeing, and stated the reasons why certain things should *always* be done, and certain other things *never* done, I will repeat shortly the few things which *are to be done*, in the order in which they occur, and you will find that they are really very few, when separated from the reasons and explanations.

Raise the clinches with the buffer.

Have only one foot bare at a time.

Pare out the foot ; but leave the frog alone.

Cut off the heels of the shoe, as I have directed.

Open the nail holes *straight* through the shoe.

Form a clip at the toe, and turn up the toe of the shoe.

Fit the shoe with great care to the toe, quarters and heels.

Heat the shoe, and apply it to the foot, to see that the crust has a fair bearing upon it.

Cool the shoe, "back hole" it, and file it up.

Nail it on with five nails, coming out low in the crust.

Hammer down the clinches without rasping them, and only rasp the hoof below them.

GENERAL OBSERVATIONS.

I have said that five nails are sufficient to hold on a fore shoe at any kind of work, in any country and at any pace, and I again advise you to employ that number, placing

three on the outside of the shoe, and two on the inside, because I know from experience that with the very commonest care on the part of the smith, they will hold a shoe through any difficulty of ground or pace, but I am prepared to prove that they are more than sufficient for the purpose, and to show that many smiths can and do keep on a fore shoe by three nails only, two placed on the outside and one on the inside.

For sixteen years I never, in a single instance, had more than three nails in the fore shoe of any one of my six horses, and they have all been shod with leather, or some other covering to the sole during the whole time; some of them did not particularly require it, but having commenced it as an experiment, and finding no inconvenience from it, I have gone on with it, even with a carriage horse, which has grown to rather more than seventeen hands high, and he too has continued to carry his shoes, leather and all, quite safely with only three nails in each fore shoe during the four years that he has been in my possession.

Cases are recorded of horses having done a variety of work with only three nails in each fore shoe; and I will now add another which happened to a horse of my own, which ought to set the question at rest, supposing any doubt still to exist as to the capability of three nails to hold a shoe. The horse was twenty-eight years old at the time; he was a high stepper, and impetuous in company, and had large flat feet which grew horn very sparingly, so that it was quite necessary to protect his feet by a stout shoe with leather and stopping under it. He happened to be a particularly good lady's horse for one who had plenty of nerve and could ride well, and I lent him to join in a large riding party of ladies and gentlemen on a visit at a friend's house, who took long daily rides in a very hilly district regardless of pace, over commons covered with heath, furze and stones, through rough stony lanes and in every variety of ground, and although his shoes had been on ten days when I sent him away he returned to me at the end of five weeks with his shoe worn out certainly, but firm on his feet and the clinches all close. I mention this last circumstance because it is a proof that his shoes had been put on with pro-

per care ; for whenever you find a clinch rise you may be certain that you have done something wrong ; either the crust did not bear upon the shoe all round or the nail holes did not pass straight through the shoe, or the heads of the nails did not fill the bottom of the holes ; any one of these things may cause a clinch to raise, and a risen clinch is a sure sign of careless shoeing.

I may mention as further proof of the sufficiency of three nails to keep on a shoe, that Major General Key, when in command of the 15th Hussars, stationed at Exeter, England, thirteen years ago, had four horses shod with three nails only in each fore shoe. Finding how many horses were shod he was induced to try the plan upon his, and felt so satisfied with the result that he immediately had the others similarly shod ; and an officer in the Prussian hussars wrote me that his horses also were shod with three nails only in each fore shoe, and that he found no difficulty whatever in keeping their shoes on.

But in order still further to test the power of three nails to hold a shoe, I obtained permission of a builder to have one of his horses, which was employed in drawing heavy building materials through a deep clay meadow, shod with three nails only in each fore shoe. The horse in question was fifteen hands three and a half inches high, and the shoes that were put on him were common wagon horse shoes with stamped holes and no fullering, and each shoe weighed one pound fourteen ounces, and he carried them safely for a month notwithstanding the heavy loads he daily drew through the deep, clinging clay in which he worked.

I could state several other cases of successful shoeing with three nails if it were necessary, but as I have no intention of recommending you to trust to such slender fastening as your general plan of shoeing, I may content myself with those which I have already recorded ; nevertheless I would advise you not to be perfectly satisfied with yourself until you have tried your hand at keeping on some shoes by three nails only ; because a bad fitter cannot do it, but a good fitter always can. The principal use of such an experiment will be to show you, that you may safely leave out one or even two nails in a case of broken crust, or a "shaky" place,

or indeed whenever from any cause you may think it desirable to do so.

I think I have proved beyond dispute that a fore shoe can be kept on by three nails, therefore he must be a sorry bungler indeed who cannot manage it with five.

Although I have nothing new to offer, and nothing to alter as regards the principles of Horse Shoeing, which I have endeavored to inculcate in the preceding editions of my book, I considered that it would not be altogether uninteresting to those whose fears still deter them from adopting it, if in putting forth another edition I recorded some few of the confirmatory results of the further experience since the former editions were published, but more especially those derived from the hunting field toward the close of such a season as 1860, marked as it was by an unprecedented quantity of wet, which rendered the country heavier and deeper and more trying to the security of horses' shoes, than any that had preceded it for several years. I found on referring to the register kept at the Devon and Exeter Institution, that the quantity of rain which fell during the three months of November, December, and January of that winter, amounted to $11\frac{1}{4}$ inches, while the average for the same three months of the preceding five years showed less than half that quantity, the amount being only $5\frac{1}{4}$ inches.

It may perhaps suffice without enumerating all the horses which had carried their shoes safely through that season with five nails, if I confine my remarks to four belonging to two gentlemen who are both above the average weight, and one of them considerably above the average height of their compeers; they are both good men across country, ride well to hounds and are always to be found in the best places during a run; one of them had shod his horses on my plan for four or five years, relieving their feet occasionally in the summer by omitting two of the five nails; he therefore had no fears, and was not at all surprised that he had lost no shoes; but the other to whom it was an experiment, showed great misgiving at first, but two or three shoeings convinced him that his fears were groundless, and he has now more confidence in five nails, than he had a year before in seven or eight; because then the loss of a shoe was no uncommon

thing with him, whereas now the thought of such an occurrence never enters his head. The first horse he asked me to see shod for him, is one that has gained for himself a high character in Ireland as a steeple chase horse, and I must say that his legs bore ample testimony to their familiarity with stone walls, they were perfectly round and disfigured by sundry bony lumps; nevertheless his owner had given a large price for him. He is a powerful lasting horse, and is not to be stopped by a six foot wall. When I saw him first he was very badly shod, and had seven nails in each fore shoe, which clearly had a good deal to do with the weak horn and round legs he possessed at that time; for very soon after his feet had been freed from the confinement caused by the inside nails, his legs became less round, although he had been regularly hunted in turn with the other horses; and at the third shoeing the suspensary ligaments could be distinctly traced by the finger, and some weeks afterward when I next saw him shod, they were perfectly visible and his legs had become almost flat; he had moreover a very fair quantity of dead horn in his feet, showing that the growth of horn had begun to increase, which at previous shoeings had been very deficient; and I had no doubt when the hunting season was quite over, that the relief afforded by the withdrawal of two nails, would cause very considerable further improvement both in his legs and feet. But the most satisfactory result of the season was furnished by the other horse belonging to the same gentleman, which he had regularly ridden in turn with the one above mentioned; this horse, although undeniable in the hunting field, had large flat brittle feet, which made riding him in some places rather nervous work, and I recommended his owner to try him with five nails and leather, and after indulging in the expression of numerous doubts and fears he consented, provided I would see it done, which of course I did, and great was his relief at the end of the first day to find that his horse had not only carried him more pleasantly than usual through very deep ground, but that he had brought his shoes home safe and unmoved on his feet; this gave him confidence and he continued to hunt him in leather secured by five nails; and he told me that he verily be-

lieved the horse had scarcely ever been less than fetlock deep during any day he was out in the preceding three months, frequently knee deep, and on the day previous to our conversation he was bogged up to his tail, but he had not lost a shoe and he would not take double the money that he offered to sell him for in the early part of the season.

I will add one other case for the purpose of showing the amount of relief, that was obtained from the removal of one nail from the inner quarter of each fore foot of an old thorough bred hunter, which one of the above named gentlemen had purchased in the early part of the season. He was the very beau ideal of what a weight carrying hunter should be ; perfect master of his business and well known in most of the best hunting counties in England ; but time and hard work had somewhat told on him, and prevented his recovering the effects of a severe day quite as readily as he used to do in times past. All this my friend was fully prepared for, but he was not prepared for the state in which he found him on the morning after the first severe day he had encountered ; and he begged me to come and look at his " poor horse " with him, which I did and it has rarely fallen to my lot to behold a more pitiable object than that poor beast presented ; he was standing in the middle of his box apparently unable and most unquestionably unwilling to move ; his fore legs slightly separated, to prevent the weight of his forehead falling in a direct line on his feet, and his head and neck considerably lowered for the same purpose. It was at once evident to me that his distress arose from pain in the feet ; I asked my friend how he was shod, and he told me that he had not looked at his shoes, thinking they must be all right as he came to him direct from a hunting stable ; but I did not feel quite so sure that they were all right, so I examined his hoofs as he stood and found a nail placed far back in the inner quarter of each fore foot ; I immediately sent for the smith and had the clinches of the two offending nails cut off, and the nails partly punched out while his feet were still on the ground, but before they could be entirely withdrawn from the shoes, it became necessary to raise each foot which was a difficult matter, for he would have submitted to be pushed over rather than attempt to rest his weight on

one foot only; however, by supporting him well on the other side it was accomplished, and the back nail of each foot removed. I visited him again in about three hours, and I confess I was astonished to find him quietly feeding, and evincing no indisposition to move to either side, or even to turn about when I required him to do so; the character of his expression was changed, and he did not look like the same horse.

On the following morning he was walked out for exercise, and on the second day I saw his old shoes taken off and new ones put on, secured by five nails without his having shown the smallest uneasiness; but when my friend mentioned the circumstance to a gentleman, who had hunted regularly from his boyhood and really knows a great deal about it, he strongly advised him against hunting with only five nails; he said it might do in the stable or at exercise, but it would not do with hounds. My friend, however, took a different view of the matter; for having witnessed the relief which was obtained in so short a time from the removal of those two nails, while the horse was standing still in the stable, he wisely concluded that their presence in the shoes during a severe run must have been very inconvenient, to say the least of it; and he therefore determined to shoe him with only five nails for the future, and never again saw him more distressed on the morning after a hard day, than any other horse would have been under similar circumstances.

NAILING ON THE SHOE.

YOUATT ON DISEASES OF THE FOOT.

INFLAMMATION OF FOOT—ACUTE FOUNDER

The sensible laminæ, or fleshy plates on the front and sides of the coffin-bone, being replete with blood-vessels, are like every other vascular (filled with blood vessels) part, liable to inflammation, from its usual causes, and particularly from the violence with which, in rapid and long continued action, these parts are strained and bruised. When battered and bruised by severe races or journeys, it will be no wonder if inflammation of the over-worked parts should ensue; and the occurrence of it may probably be produced, and the disease aggravated by the too prevalent absurd mode of treating the animal. If a horse that has been ridden or driven hard is suffered to stand in the cold, or if his feet are washed and not speedily dried, he is very likely to have "fever in the feet." There is no more fruitful source of inflammation in the human being, or the brute, than these sudden changes of temperature. The danger is not confined to change from heat to cold. Sudden transition from cold to heat is as injurious, and therefore it is that so many horses, after having been ridden far in frost and snow, and placed immediately in a hot stable, and littered up to the knees, are attacked by this malady.

Sometimes there is a sudden change of inflammation from one organ to another. A horse may have labored for several days under evident inflammation of the lungs; all at once that will subside, and the disease will appear in the feet, or inflammation of the feet may follow similar affections in the bowels or the eyes. In case of severe inflammation of the lungs, it may not be bad practice to remove the shoes and poultice the feet.

To the attentive observer the symptoms are clearly marked, and yet there is no disease so often overlooked by the groom and the carter, and even by the veterinary surgeon. The disease may assume an acute or chronic form. The earliest symptoms of fever in the feet are fidgetiness, frequent shifting of the fore-legs, but no pawing, much less any attempt to reach the belly with the hind feet. The pulse is quickened, the flanks heaving, the nostrils red, and the horse, by his anxious countenance, and possibly moaning, indicating great pain. Presently he looks about his litter, as if preparing to lie down, but he does not do so immediately; he continues to shift his weight from foot to foot; he is afraid to draw his feet sufficiently under him for the purpose of lying down; but at length he drops. The circumstance of his lying down at an early period of the disease will sufficiently distinguish inflammation of the feet from that of the lungs, in which the horse obstinately persists in standing until he drops from mere exhaustion. His quietness when down will distinguish it from colic or inflammation of the bowels, in both of which the horse is up and down, and frequently rolling and kicking when down. When the grievance is in the feet, the horse experiences so much relief from getting rid of the weight painfully distending the inflamed and highly sensible laminae, that he is glad to lie as long as he can. He will likewise, as clearly as in inflammation of the lungs or bowels, point out the seat of disease by looking at the part. His muzzle will often rest on the feet or the affected foot. He must be inattentive who is not aware of what all this indicates.

If the feet are now examined, they will be found evidently hot. The patient will express pain if they are slightly rapped with a hammer, and the artery at the pastern will throb violently. No great time will now pass, if the disease is suffered to pursue its course, before he will be perfectly unable to rise; or, if he is forced to get up, and one foot is lifted, he will stand with difficulty on the other, or perhaps drop at once from intensity of pain.

The treatment will resemble that of other inflammations, (see concluding paragraph under "Chronic Founder,") with such differences as the situation of the disease suggests.

Bleeding is indispensable; and that to its fullest extent. If the disease is confined to the forefeet, four quarts of blood should be taken as soon as possible from the toe of each, and in the manner already described; care being taken to open the artery as well as the vein. The feet may likewise be put into warm water, to quicken the flow of the blood, and increase the quantity abstracted. Poultices of linseed meal made very soft, should cover the whole of the foot and pastern, and be frequently renewed, which will promote evaporation from the neighboring parts, and possibly through the pores of the hoof, and by softening and rendering supple the hoof, will relieve its painful pressure on the swelled and tender parts beneath. More fully to accomplish this last purpose, the shoe should be removed, the sole pared as thin as possible, and the crust, and particularly the quarters, well rasped. All this must be done gently and with a great deal of patience, for the poor animal can scarcely bear his feet to be meddled with. There used to be occasional doubt as to the administration of physic, from fear of metastasis (shifting) of inflammation which has sometimes occurred, and been generally fatal. When, however, there is so much danger of losing the patient from the original attack, we must run the risk of the other. Sedative and cooling medicines should be diligently administered, consisting of digitalis, nitre, and emetic tartar.

If no amendment is observed, three quarts of blood should be taken from each foot on the following day. In extreme cases, a third bleeding of two quarts may be justified, and, instead of the poultice, cloths kept wet with water in which nitre has been dissolved immediately before, and in the proportion of an ounce of nitre to a pound of water, may be wrapped round the feet. About the third day a blister may be tried, taking in the whole of the pastern and the coronet; but a cradle must previously be put on the neck of the horse, and the feet must be covered after the blister, or they will probably be sadly blemished. The horse should be kept on mash diet, unless green meat can be procured for him; and even that should not be given too liberally, nor should he, in the slightest degree, be coaxed to eat. When he appears to be recovering, his getting on his feet should not be

hurried. It should be left perfectly to his own discretion; nor should even walking exercise be permitted until he stands firm on his feet. When that is the case, and the season will permit, two months' run at grass will be very serviceable.

It is not always, however, or often that inflammation of the feet is thus easily subdued; and, if it is subdued, it sometimes leaves after it some fearful consequences. The loss of the hoof is not an unfrequent one. About six or seven days from the first attack, a slight separation will begin to appear between the coronet and the hoof. This should be carefully attended to, for the separated horn will never again unite with the parts beneath, but the disunion will extend, and the hoof will be lost. It is true that a new hoof will be formed, but it will be smaller in size, and weaker than the first, and will rarely stand hard work. When this separation is observed, it will be a matter of calculation with the proprietor of the horse whether he will suffer the medical treatment to proceed.

CHRONIC FOUNDER.

This is a species of founder insidious in its attack, and destructive to the horse. It is a milder form of the preceding disease. There is lameness, but it is not so severe as in the former case. The horse stands as usual. The crust is warm, and that warmth is constant, but is not often probably greater than in a state of health. The surest symptom is the action of the animal. It is diametrically opposite to that in the navicular disease. The horse throws as much of his weight as he can on the posterior parts of his feet.

The treatment should be similar to that recommended for the acute disease—blood letting, poultices, fomentations and blisters, and the last much sooner and much more frequently than in the former disease.

PUMICED FEET.

The sensible and horny little plates which were elongated and partially separated during the intensity of the inflammation of founder, will not always perfectly unite again, or will have lost much of their elasticity, and the coffin-bone, no longer fully supported by them, presses upon the sole, and the sole becomes flattened, or convex, from this unnatural weight, and the horse acquires a pumiced foot. This will also happen when the animal is used too soon after an attack of inflammation of the feet, and before the laminæ have regained sufficient strength to support the weight of the horse, or to contract again by their elastic power when they have yielded to the weight. When the coffin-bone is thus thrown on the sole, and renders it pumiced, the crust at the front of the hoof will "*fall in*," leaving a kind of hollow about the middle of it.

Pumiced feet, especially in horses with large, wide feet, are frequently produced without this acute inflammation. Undue work, and especially much battering of the feet on the pavement, will extend and sprain these laminæ so much that they will not have the power to contract, and thus the coffin-bone will be thrown backward on the sole. A very important law of nature will unfortunately be soon active here. When pressure is applied to any part, the absorbents become busy in removing it; so, when the coffin-bone begins to press upon the sole, the sole becomes thin from the increased wear and tear to which it is subjected by contact with the ground, and also because these absorbents are rapidly taking it away.

This is one of the diseases of the feet for which there is no cure. No skill is competent to effect a reunion between the separated fleshy and horny laminæ, or to restore to them the strength and elasticity of which they have been deprived, or to take up that hard, horny substance which speedily fills the space between the crust and the receding coffin-bone.

All that can be done in the way of palliation is by shoeing. Nothing must press on the projecting and pumiced

part. If the projection is not considerable, a thick bar-shoe is the best thing that can be applied; but should this sole have much descended, a shoe with a very wide web, bevelled off so as not to press on the part, may be used. These means of relief, however, are only temporary, the disease will proceed; and at no great distance of time the horse will be useless.

CONTRACTION.

It must be premised that there is a great deal more horror of contracted heels than there is occasion for. Many persons reject a horse at once if the quarters are *wiring in*; but the fact is, that although this is an unnatural form of the hoof, it is slow of growth, and nature kindly makes that provision for the slowly altered form of the hoof which she does in similar cases—she accommodates the parts to the change of form. As the hoof draws in, the parts beneath, and particularly the coffin-bone, and especially the heels of that bone diminish; or, after all, it is more a change of form than of capacity. As the foot lengthens in proportion as it narrows, so does the coffin-bone, and it is as perfectly adjusted as before to the box in which it is placed. Its laminae are in as intimate and perfect union with those of the crust as before the hoof had begun to change. On this account it is that many horses, with very contracted feet, are perfectly sound, and no horse should be rejected merely because he has contraction. He should undoubtedly be examined more carefully, and with considerable suspicion; but if he has good action, and is otherwise unexceptional, there is no reason that the purchase should not be made. A horse with contracted feet, if he goes sound, is better than another with open but weak heels.

The opinion is perfectly erroneous that contraction is the necessary consequence of shoeing. There can be no doubt that an inflexible iron ring being nailed to the foot prevents, to a very considerable degree, the descent of the sole and

the expansion of the heels below ; and it is likewise probable that when the expansion of the heels is prevented, they often begin to contract. But here, as before stated, nature makes provision for the change. Some gentlemen who are careful of their horses have driven them twenty years, and principally over the rough pavement of towns, without a day's lameness. Shoeing may be a necessary evil, but it is not the evil which many speculative persons have supposed it, and, notwithstanding its effects, the foot ordinarily lasts longer than the legs ; nay, horsemen tell us that one pair of good feet is worth two pairs of legs.

There is nothing in the appearance of the feet which would enable us to decide when contraction is or is not destructive to the usefulness of the animal ; his manner of going, and his capability for work, must be our guides. Lameness usually accompanies the beginning of contraction ; it is the invariable attendant on rapid contraction, but it does not always exist when the *wiring in* is slow, or of long standing.

A very excellent writer, particularly when treating of the foot of the horse, Mr. Blaine, has given us a long and correct list of the causes of injurious contraction, and most of them are, fortunately, under the control of the owner of the animal. He places at the head of them, neglect of paring. The hoof is continually growing, the crust is lengthening, and the sole is thickening. This is a provision for the wear and tear of the foot in an unshod state ; but when it is protected by a shoe, and none of the horn can be worn away by coming in contact with the ground, and the growth of horn continues, the hoof grows high, and the sole gets thick, and, in consequence of this, the descent of the sole and the expansion of the heels are prevented, and contraction is the result. The smith might lessen, if not prevent the evil, by carefully thinning the sole, and lowering the heels at each shoeing ; but the first of these is a matter of considerable labor, and the second could not be done effectually without being accompanied by the first, and, therefore, they are both neglected. Owners should often stand by and see that this is properly done.

Wearing the shoes too long, especially when nails are

placed nearer than they should be to the quarters to make the shoes hold, is another cause of contraction. There is no rule which admits of so little exception as that, once in about every three weeks, the growth of horn which the natural wear of the foot cannot get rid of, should be pared away—the toe should be shortened in most feet—the sole should be thinned, and the heels lowered. Every one who has carefully observed the shape of the horse's foot, must have seen that in proportion to its height or neglected growth, it contracts and closes round the coronet. A low-heeled horse might have other serious defects, of which it will be our duty to speak, but he has seldom a contracted foot.

Another source of contraction is the want of natural moisture. The hoof of the stable-horse kept from moisture becomes dry and unelastic, and, consequently, is rendered more subject to this disease. Hence the propriety of stopping the feet where there is the least tendency to contraction. The intelligent and careful groom will not omit it a single night. Cowdung, with a small portion of clay to give it consistence, is a common and very good stopping. A better one is a piece of thick felt, cut to the shape of the sole, and soaked in water. The common stopping of tar and grease is peculiarly objectionable, for it closes the pores of the feet, and ultimately increases the dryness and brittleness which it was designed to remedy.

Thrushes aid sometimes in producing contraction, but they are much oftener the consequence than the cause.

The removal of the bars takes away a main impediment to contraction. Their use in assisting the expansion of the foot has been already stated, and should a disposition to contraction be produced by any other cause, the cutting away of the bars would hasten and aggravate the evil; but the loss of the bar would not of itself produce contraction.

The contraction, however, that is connected with permanent lameness, although increased by the circumstances which we have mentioned, usually derives its origin from a different source, and from one that acts violently and suddenly. Inflammation of the little plates covering the cor-

fin-bone is the most usual cause; and a degree of inflammation not sufficiently intense to be characterized as acute founder, but quickly leading to sad results, may, and does spring from causes almost unsuspected. Something may depend upon the breed. Blood-horses are particularly liable to contraction. Not only is the foot naturally small, but it is disposed to become narrower at the heels. On the other hand, the broad, flat foot of the cart-horse is subject to diseases enough, but contraction is seldom one of the number. In horses of equal blood, not a little seems to depend upon the color, and the dark chestnut is proverbially prone to contraction.

Whatever is the cause of that rapid contraction or narrowing of the heels which is accompanied by severe lameness, the symptoms may be easily distinguished. While standing in the stable, the horse will point with, or place forward, the contracted foot; or, if both feet are affected, he will alternately place one before the other. When he is taken out of the stable, his step will be peculiarly short and quick, and the feet will be placed gently and tenderly on the ground, or scarcely lifted from it in the walk or the trot. It would seem as if the slightest irregularity of surface would throw the animal down, and so it threatens to do, for he is constantly tripping and stumbling. If the fore-feet are carefully observed, one or both of them will be narrowed across the quarters and toward the heels. In a few cases, the whole of the foot appears to be contracted and shrunk; but in the majority of instances, while the heels are narrower, the foot is longer. The contraction appears sometimes in both heels: at other times in the inner heel only; or, if both are affected, the inner one is wired in the most, either from the coronet to the base of the foot, or only or principally at the coronet—oftener near the base of the foot—but in most cases the hollow being greatest about mid-way between the coronet and the bottom of the foot. This irregularity on contraction, and uncertainty as to the place of it, prove that it is some internal disorganization, the seat of which varies with the portion of the attachment between the hoof and the foot that was principally strained or injured. In every recent case, the

contracted part will be hotter than the rest of the foot, and the sole will, in the majority of cases, be unnaturally concave.

Of the treatment of contraction attended with lameness, little that is satisfactory can be said. There have been various mechanical contrivances, such as clips of a peculiar form, and a jointed shoe, which, when the foot was softened, was gradually pressed asunder at the heels by a screw; but all have proved of no avail, for the disease speedily returned when the ordinary shoe was again applied to enable the horse to work, and work was required of him.

If the action of the horse is not materially impaired, it is better to let the contraction alone, be it as great as it will. If the contraction has evidently produced considerable lameness, the owner of the horse will have to calculate between his value, if cured, the expense of the cure, and the probability of failure.

The medical treatment should alone be undertaken by a skillful veterinary surgeon, and it will principally consist in abating any inflammation that may exist, by local bleeding and physic, paring the sole to the utmost extent that it will bear; rasping the quarters as deeply as can be, without their being too much weakened, or the coronary ring at all injured thereby; rasping deeply likewise at the toe, and perhaps scoring at the toe. The horse is afterward made to stand during the day in wet clay, placed in one of the stalls. He is at night moved into another stall, and his feet bound up thickly in wet cloths; or he is turned out into wet pasturage, with tips, or, if possible, without them, and his feet are frequently pared out, and the quarters lightly rasped. In five or six months the horn will generally have grown down, when he may be taken up, and shod with shoes unattached by nails on the inner side of the foot, and put to gentle work. The foot will be found very considerably enlarged, and the owner will, perhaps, think that the cure is accomplished. The horse may possibly, for a time, stand very gentle work, and the inner side of the foot being left at liberty, its natural expansive process may be resumed: the internal part of the foot, however, has not been healthily filled up with the expan-

sion of the crust. If that expansion has been effected forward on the quarters, the crust will no longer be in contact with the lengthened and narrowed heels of the coffin-bone. There will not be the natural adhesion and strength, and a very slight cause, or even the very habit of contraction will, in spite of all care and the freedom of the inner quarter, in very many instances, cause the foot to wire in again as badly as before.

THE NAVICULAR JOINT DISEASE.

Many horses with well-formed and open feet become sadly and permanently lame, and veterinary surgeons have been puzzled to discover the cause. The farrier has had his convenient explanation, "the shoulder;" but the scientific practitioner may not have been able to discover an ostensible cause of lameness in the whole limb. There is no one accustomed to horses who does not recollect an instance of this.

Behind and beneath the lower pastern-bone, and behind and above the heel of the coffin-bone, is a small bone called the navicular or shuttle-bone. It is so placed as to strengthen the union between the lower pastern and the coffin-bone, and to enable the flexor tendon, which passes over it in order to be inserted into the bottom of the coffin-bone, to act with more advantage. It forms a kind of joint with that tendon. There is a great deal of weight thrown on the navicular bone, and from the navicular bone on the tendon; and there is a great deal of motion or play between them in the bending and extension of the pasterns.

It is very easy to conceive that, from sudden concussion, or from rapid and overstrained motion, and that, perhaps, after the animal has been some time at rest, and the parts have not adapted themselves for motion, there may be too much play between the bone and the tendon—the delicate membrane which covers the bone, or the cartilage of the bone may be bruised, and inflamed, and destroyed; that all the painful effects of an inflamed and opened joint may en-

sue, and the horse be irrecoverably lame. Numerous dissections have shown that this joint, formed by the tendon and the bone, has been the frequent, and the almost invariable seat of these obscure lamenesses. The membrane covering the cartilage of the bone has been found in an ulcerated state; the cartilage has been ulcerated and eaten away; the bone has become carious or decayed, and bony adhesions have taken place between the navicular and the pastern and the coffin-bones, and this part of the foot has often become completely disorganized and useless. This joint is probably the seat of lameness not only in well-formed feet, but in those which become lame after contraction.

The cure of navicular disease is difficult and uncertain. The first and all-important point is the removal of the inflammation in this very susceptible membrane. Local bleeding, poulticing, and physic will be our principal resources. If there is contraction, this must, if possible, be removed by the means already pointed out. If there is no contraction, it will nevertheless be prudent to get rid of all surrounding pressure, and to unfetter as much as possible the inside heel of the coffin-bone, by paring the sole and rasping the quarters, and using the shoe without nails on the inner quarter, and applying cold poultices to the coronet and the whole of the foot. This is a case, however, which must be turned over to the veterinary surgeon, for he alone, from his knowledge of the anatomy of the foot, and the precise seat of the disease, is competent to treat it. If attacked on its earliest appearance, and before ulceration of the membrane of the joint has taken place, it may be radically cured; but ulceration of the membrane will be with difficulty healed, and decay of the bone will forever remain.

Blistering the coronet will often assist in promoting a cure by diverting the inflammation to another part, and it will materially quicken the growth of the horn. A seton passed through the frog by a skillful operator, and approaching as nearly as possible to the seat of the disease, has been serviceable.

SAND-CRACK

This, as its name imports, is a crack or division of the hoof from above downward, and into which sand and dirt are too apt to insinuate themselves. It is so called because it most frequently occurs in sandy districts, the heat of the sand applied to the feet giving them a disposition to crack. It occurs both in the fore and the hind feet. In the fore feet it is usually found in the inner quarter, but occasionally in the outer quarter, because there is the principal stress or effort toward expansion in the foot, and the inner quarter is weaker than the outer. In the hind feet the crack is almost invariably found in the front, because in the digging of the toe into the ground in the act of drawing, the principal stress is in front.

This is a most serious defect. It indicates a brittleness of the crust, sometimes natural, but oftener the consequence of mismanagement or disease, which, in spite of every means adopted, will probably be the source of future annoyance. On a hoof that has once been thus divided, no dependence can be placed, unless, by great care, the natural suppleness of the horn has been restored and is retained.

Sand-crack may happen in an instant, from a false step or over-exertion, and therefore a horse, although he may spring a sand-crack within an hour after the purchase, cannot be returned on that account.

The crack sometimes does not penetrate through the horn. It then causes no lameness; nevertheless, it must not be neglected. It shows that there is brittleness, which should induce the purchaser to pause; and, if proper means are not taken, it will generally soon penetrate to the quick. It should be pared or rasped fairly out, and, if the paring or rasping has been deep, the foot should be strengthened by a coating of pitch, with coarse tape bound over it, and a second coating of pitch covering this.

If the crack has penetrated through the crust, and lameness has ensued, the case is more serious. It must be carefully examined, in order to ascertain that no dirt or sand has got into it; the edges must be more considerably

thinned, and if any fungus (proud flesh) is beginning to protrude through the crack, and is imprisoned there, it must be destroyed by the application of the butyr (chloride) of antimony. This is preferable to the cautery (hot iron), because the edges of the horn will not be thickened or roughened, and thus become a source of after-irritation. The firing iron must then be run deeply across, above and below the crack; a pledget of dry tow being placed in the crack, in and over it, and the whole bound down as tightly as possible. On the third day the part should be examined, and the caustic again applied, if necessary; but if the crack is dry, and defended by a hard horny crust, the sooner the pitch plaster is put on the better.

The most serious case is, when from tread or neglect, the coronet is divided. The growth of horn proceeds from the coronary ligament, and unless this ligament is sound, the horn will grow down, disunited. The method to be here adopted, is to run the back of the firing iron over the coronet where it is divided. Some inflammation will ensue; and when the scab produced by the cautery peels off, as it will in a few days, the division will be obliterated, and sound and united horn will grow down. When there is sufficient horn above the crack, a horizontal line should be drawn with a firing iron between the sound horn and the crack. The connection between the sound part and the crack will thus be prevented, and the new horn will gradually and safely descend, but the horse should not be used until sufficient horn has grown down fairly to isolate the crack. When the horn is divided at the coronet, it will be five or six months before it will grow fairly down, and not before that, should the animal be used even for ordinary work. When, however, the horn is grown an inch from the coronet, the horse may be turned out—the foot being well defended by the pitch plaster, and that renewed as often as it becomes loose—a bar-shoe being worn, chambered so as not to press upon the hoof immediately under the crack, and that shoe being taken off, the sole pared out, and any bulbous projection of new horn being removed once in every three weeks.

To remedy the undue brittleness of the hoof, there is no

better application than that recommended in page 48, the sole being covered at the same time with the common cow dung or felt stopping.

TREAD AND OVER-REACH.

Under these terms are comprised bruises and wounds of the coronet, inflicted by the other feet.

A tread is said to have taken place when the inside of the coronet of one hind foot is struck by the calkin of the shoe of the other, and a bruised or contused wound is inflicted.

A tread, or wound of the coronet, must never be neglected, lest gravel should insinuate itself into the wound, and form deep ulcerations, called sinuses or pipes, and which constitute quittor. Although some mildly stimulating caustic may be occasionally required, the caustic, too frequently used by farriers, should be carefully avoided, not only lest quittor should be formed, but lest the coronary ligament should be so injured as to be afterward incapable of secreting perfect horn. When properly treated, a tread is seldom productive of much injury. If the dirt is well washed out of it, and a pledget of tow, dipped in Friar's balsam*, bound over the wound, it will, in the majority of cases, speedily heal. Should the bruise be extensive, or the wound deep, a poultice may be applied for one or two days, and then the Friar's balsam, or digestive ointment.† Sometimes a soft tumor will form on the part, which will be quickly brought to suppuration by a poultice; and when the matter has run out, the ulcer will heal by the application of the Friar's balsam, or a weak solution of blue vitriol.

An over-reach is a tread upon the heel of the coronet of the fore foot by the shoe of the corresponding hind foot, and either inflicted by the toe, or by the inner edge of the

*Compound tincture of benzoin.

†Digestive ointment is composed of two ounces of Venice turpentine; yolks of two eggs; one-half ounce of oil of St. Johnswort.

inside of the shoe. The preventive treatment is the beveling, or rounding off, of the inside edge or rim of the hind shoes. The cure is, the cutting away of the loose parts, the application of Friar's balsam, and protection from the dirt.

Some horses, particularly young ones, overreach so as to strike the toes of the hind shoes against the fore ones, which is termed clinking. Keeping up the head of the horse does something to prevent this; but the smith may do more by shortening the toe of the hind shoes, and having the web broad. When they are too long, they are apt to be torn off; when too narrow, the hind foot may bruise the sole of the fore one, or may be locked fast between the branches of the fore shoe.

FALSE QUARTER.

If the coronary ligament, by which the horn of the crust is secreted, is divided by some cut or bruise, or eaten through by any caustic, there will occasionally be a division in the horn as it grows down, either in the form of a permanent sand-crack, or one portion of the horn overlapping the other. It occasionally follows neglected sand-crack, or it may be the consequence of quittor. This is exteriorly an evident fissure in the horn, and extending from the coronet to the sole, but not always penetrating to the laminæ. It is a very serious defect, and exceedingly difficult to remedy; for occasionally, if the horse is overweighted or hurried on his journey, the fissure will open and bleed, and very serious inconvenience and lameness may ensue. Grit and dirt may insinuate itself into the aperture, and penetrate to the sensible laminæ. Inflammation will almost of necessity be produced, and much mischief will be effected. While the energies of the animal are not severely taxed, he may not experience much inconvenience or pain; but the slightest exertion will cause the fissure to expand, and painful lameness to follow.

The coronary ligament must be restored to its perfect

state, or at least to the discharge of its perfect function. Much danger would attend the application of the caustic in order to effect this. A blister is rarely sufficiently active ; but the application, not too severely, of a heated flat or rounded iron to the coronet at the injured part, affords the best chance of success—the edges of the horn on either side of the crack being thinned, the hoof supported, and the separated parts held together by a firm encasement of pitch, as described when speaking of the treatment of sand-crack. The coronet must be examined at least once in every fortnight, in order to ascertain whether the desired union has taken place ; and, as a palliative during the treatment of the case, or if the treatment should be unsuccessful, a bar-shoe may be used, and care taken that there be no bearing at or immediately under the separation of the horn. This will be best effected when the crust is thick and the quarters strong, by paring off a little of the bottom of the crust at the part, so that it will not touch the shoe ; but if the foot is weak, an indentation or hollow should be made in the shoe. Strain or concussion on the immediate part will thus be avoided, and, in sudden or violent exertion, the crack will not be so likely to extend upward to the coronet, when the whole and sound horn has begun to be formed there.

QUITTOR.

This has been described as being the result of neglected or bad tread or over-reach ; but it may be the consequence of any wound in the foot, and in any part of the foot. In the natural process of ulceration, matter is thrown out from the wound. It precedes the actual healing of the part. The matter which is secreted in wounds of the foot is usually pent up there, and, increasing in quantity, and urging its way in every direction, it forces the little fleshy plates of the coffin-bone from the horny ones of the crust, or the horny sole from the fleshy sole, or even eats deeply into the internal parts of the foot. These pipes or sinuses

run in every direction, and constitute the essence of the quittor.

If it arises from a wound in the bottom of the foot, the aperture may speedily close up, and the matter which continues to be secreted is confined within, separating the horny from the fleshy sole, until it forces its way upward and appears at the coronet (usually at the quarter), and there slowly oozes out. The opening and the quantity of matter discharged are so small, that although over a great part of the quarter and the sole the horn may have separated from the coffin-bone, and the matter may have penetrated even under the cartilages and ligaments, and into the coffin-joint, but little mischief would be suspected by an inexperienced person. The pressure of the matter wherever it has gone, has formed ulcerations that are indisposed to heal, and that require the application of strong and painful stimulants to induce them to heal; and, worse than this, the horn, once separated from the sensible parts beneath, will never again unite with them. Quittor may occur in both the fore and the hind feet.

It may be necessary to remove much of the horny sole, which will be speedily reproduced when the fleshy surface beneath can be brought to a healthy condition; but if much of the horn at the quarters must be taken away, five or six months may probably elapse before it will be sufficiently grown down again to render the horse useful.

Measures of considerable severity are indispensable. The application of some caustic will alone produce a healthy action on the ulcerated surfaces; but on the ground of interest and of humanity, we protest against that brutal practice, or at least the extent to which it is carried, and is pursued by many ignorant smiths, of coring out, or deeply destroying the healthy as well as the diseased parts—and parts which no process will again restore. When any portion of the bone can be felt by the probe, the chances of success are diminished, and the owner and the operator should pause. When the joints are exposed, the case is hopeless, although, in a great many instances, the bones and the joints are exposed by the remedy and not by the disease. One hint may not be necessary to the practi-

tioner, but it may guide the determination and hopes of the owner ; if, when a probe is introduced into the fistulous on the coronet—the direction of the sinuses or pipes is backward—there is much probability that a perfect cure may be effected ; but if the direction of the sinuses is forward, the cure is at best doubtful. In the first instance, there is neither bone nor joint to be injured ; in the other, the more important parts of the foot are in danger, and the principal action and concussion are found.

Neglected bruises of the sole sometimes lay the foundation for quittor. When the foot is flat, it is very liable to be bruised if the horse is ridden fast over a rough and stony road ; or a small stone, insinuating itself between the shoe and the sole, or confined by the curvature of the shoe, will frequently lame the horse. The heat and tenderness of the part, the occasional redness of the horn, and the absence of puncture, will clearly mark the bruise. The sole must then be thinned, and particularly over the bruised part, and, in neglected cases, it must be pared even to the quick, in order to ascertain whether the inflammation has run on to suppuration. Bleeding at the toe will be clearly indicated ; and poultices, and such other means as have either been described under “Inflammation of the Feet,” or will be pointed out under the next head. The principal causes of bruises of the foot are leaving the sole too much exposed by means of a narrow-webbed shoe, or the smith paring out the sole too closely, or the pressure of the shoe on the sole, or the introduction of gravel or stone between the shoe and the sole.

The author subjoins the mode of cure in this disease as it has been practised by two veterinary surgeons. They are both excellent, and, so far as can well be the case, satisfactory.

Mr. Percival says : “The ordinary mode of cure consists in the introduction of caustic into the sinus ; and so long as the cartilage preserves its integrity—by which I mean, is free from decay—this is perhaps the most prompt and effectual mode of proceeding. The farrier’s practice is to mix about half a drachm of corrosive sublimate in powder with twice or thrice the quantity of flour, and make

them into a paste with water. This he takes up by little at a time with the point of his probe, and works it about into the sinus until the paste appears rising in the orifice above. After this is done, he commonly has the horse walked about for an hour or two, or even sent to slow work again, which produces a still more effectual solution of the caustic, at the same time that it tends greatly to its uniform and thorough diffusion into every recess and winding of the sinus. The consequence of this sharp caustic dressing is a general slough from the sinus. Every part of its interior surface is destroyed, and the dead particles become agglutinated, and cast off along with the discharges in the form of a dark, firm curdled mass, which the farrier calls the core; and so it commonly proves, for granulations follow close behind it, and fill up the sinus."

The other mode of treatment is that of Mr. Newport, a surgeon of long standing: "After the shoe has been removed, thin the sole until it will yield to the pressure of the thumb; then cut the under parts of the wall in an oblique direction from the heel to the anterior part, immediately under the seat of complaint, and only as far as it extends, and rasp the side of the wall thin enough to give way to the pressure of the over-distended parts, and put on a bar-shoe rather elevated from the frog. Ascertain with a probe the direction of the sinuses, and introduce into them a saturated solution of sulphate of zinc, by means of a small syringe. Place over this dressing the common poultice, or the turpentine ointment, and renew the application every twenty-four hours. I have frequently found three or four such applications complete a cure. I should recommend that when the probe is introduced, in order to ascertain the progress of cure, that it be gently and carefully used, otherwise it may break down the new-formed lymph. I have found the solution very valuable where the synovial fluid (joint-oil) has escaped, but not to be if the inflammation of the parts is great.

PRICK OR WOUND IN THE SOLE OR CRUST.

This is the most frequent cause of quittor. It is evident that the sole is very liable to be wounded by nails, pieces of glass, or even sharp flints. Every part of the foot is subject to injuries of this description. The usual place at which these wounds are found, is in the hollow between the bars and the frog, or in the frog itself. In the fore-feet the injury will be generally recognized on the inner quarter, and on the hind-feet near the toe. In fact, these are the thinnest parts of the fore and hind-feet. Much more frequently the laminae are wounded by the nail in shoeing; or if the nail does not penetrate through the internal surface of the crust, it is driven so close to it that it presses upon the fleshy parts beneath, and causes irritation and inflammation, and at length ulceration. When a horse becomes suddenly lame after the legs have been carefully examined, and no cause of lameness appears in them, the shoe should be taken off. In many cases the offending substance will be immediately detected, or the additional heat felt in some part of the foot will point out the seat of injury; or, if the crust is rapped with the hammer all round, the flinching of the horse will discover it; or pressure with the pincers will render it evident.

When the shoe is removed for this examination, the smith should never be permitted to wrench it off, but each nail should be drawn separately, and examined as it is drawn, when some moisture appearing upon it will not unfrequently reveal the spot at which matter has been thrown out.

Sudden lameness occurring within two or three days after the horse has been shod, will lead to the suspicion that the smith has been in fault; yet no one who considers the thinness of the crust, and the difficulty of shoeing many feet, will blame him for sometimes pricking the animal. His fault will consist in concealing or denying that of which he will almost always be aware at the time of shoeing, from the flinching of the horse, or the dead sound, or the peculiar resistance that may be noticed in the driving of thenail.

When the seat of mischief is ascertained, the sole should be thinned round it, and at the nail-hole or the puncture, it should be pared to the quick. The escape of some matter will now probably tell the nature of the injury, and remove its consequences. If it be puncture of the sole effected by some nail, or any similar body, picked up on the road, all that will be necessary is to enlarge the opening a little, and then to place on it a flegget of tow dipped in Friar's balsam, and over that a little common stopping. If there is much heat and lameness, a poultice should be applied.

A puncture near the center of the sole is most dangerous, from its liability to wound the flexor tendon where it is inserted in the coffin-bone, from which much action is required; or it may even penetrate the joint between the navicular and coffin-bone.

If pricked by a nail, the treatment above described will usually soon effect a cure. It may, however, be prudent to keep the foot stopped for a few days. If the accident has been neglected, and matter begins to be formed, and to be pent up, and to press on the neighboring parts, and the horse evidently suffers extreme pain, and is sometimes scarcely able to put his foot to the ground, and much matter is poured out when the opening is enlarged, further precautions must be adopted. The fact must be recollected that the living and dead horn will never unite, and every portion of the horny sole that has separated from the fleshy sole above must be removed. The separation must be followed as far as it reaches. Much of the success of the treatment depends on this. No small strip or edge of separated horn must be suffered to press upon any part of the wound. The exposed fleshy sole must then be touched, but not too severely, with the butyr (chloride) of antimony, some soft and dry tow being spread on the part, the foot stopped, and a poultice placed over all if the foot seems to require it. On the following day a thin pellicle of horn will frequently be found over a part or the whole of the wound. This should be, yet very lightly, again touched with the caustic; but if there is an appearance of fungus sprouting from the exposed surface, the application of the butyr must be more severe, the tow being again placed

over it, so as to afford considerable yet uniform pressure. Many days do not often elapse before the new horn covers the whole of the wound. In these extensive openings the Friar's balsam will not always be successful, but the cure must be effected by the judicious and never too severe use of the caustic. Bleeding at the toe and physic will be resorted to as useful auxiliaries when much inflammation arises.

CORNS.

In the angle between the bars and the quarters the horn of the sole has sometimes a red appearance, and is more spongy and softer than at any other part. The horse flinches when this portion of the horn is pressed upon, and occasional or permanent lameness is produced. This disease of the foot is termed corns: bearing this resemblance to the corn of the human being, that it is produced by pressure, and is a cause of lameness. When corns are neglected, so much inflammation is produced in that part of the sensible sole, that suppuration follows, and to that quitter succeeds, and the matter either undermines the horny sole, or is discharged at the coronet.

The pressure hereby produced manifests itself in various ways. When the foot becomes contracted, the part of the sole inclosed between the external crust that is wiring in, and the bars that are opposing that contraction, is placed in a kind of vice, and becomes inflamed; hence it is rare to see a contracted foot without corns. When the shoe is suffered to remain on too long, it becomes embedded in the heel of the foot; the external crust grows down on the outside of it, and the bearing is thrown on this angular portion of the sole. No part of the sole can bear continued pressure, and inflammation and corns are the result. From the length of wear, the shoe sometimes becomes loosened at the heels, and gravel insinuates itself between the shoe and the crust, and accumulates in this angle, and sometimes seriously wounds it.

The bars are too frequently cut away, and then the heel of the shoe must be beveled inward, in order to answer to this absurd and injurious shaping of the foot. By this slanting direction of the heel of the shoe inward, an unnatural disposition to contraction is given, and the sole must suffer in two ways—in being pressed upon by the shoe, and squeezed between the outer crust and the external portion of the bar. The shoe is often made unnecessarily narrow at the heels, by which this angle, seemingly less disposed to bear pressure than any other part of the foot, is exposed to accidental bruises. If, in the paring out of the foot, the smith should leave the bars prominent, he too frequently neglects to pare away the horn in the angle between the bars and the external crust; or if he cuts away the bars, he scarcely touches the horn at this point; and thus, before the horse has been shod a fortnight, the shoe rests on this angle, and produces corns. The use of a shoe for the fore-foot, thickened at the heels, is, and especially in weak feet, a source of corns, from the undue bearing there is on the heels, and the concussion to which they are subject.

Corns are most frequent and serious in horses with thin horn and flat soles, and low, weak heels. They do not often occur in the outside heel. It is of a stronger construction than the inside one. The method adopted by shoeing-smiths to ascertain the existence of corn by the pain evinced when they pinch the bar and crust with their irons, is very fallacious. If the horn is naturally thin, the horse will shrink under no great pressure, although he has no corn, and occasionally the bars are so strong as not to give way under any pressure.

The cure of old corns is difficult; for as all the shoeing has some tendency to produce pressure here, the habit of throwing out this diseased horn is difficult to get rid of when once contracted; recent corns, however, will yield to good shoeing.

The first thing to be done is to well pare out the angle between the crust and the bars. Two objects are answered by this: the extent of the disease will be ascertained, and one cause of it removed. A very small drawing-knife must be used for this purpose. The corn must be pared out to

the very bottom, taking care not to wound the sole. It may then be discovered whether there is any effusion of blood or matter underneath. If this is suspected, an opening must be made through the horn, the matter evacuated, the separated horn taken away, the course and extent of the sinuses explored, and the treatment recommended for quittor adopted. Should there be no collection of fluid, the butyr of antimony should be applied over the whole extent of the corn, after the horn has been thinned as closely as possible. The object of this is to stimulate the sole to throw out more healthy horn. In bad cases a bar-shoe may be put on, so chambered that there shall be no pressure on the diseased part. This may be worn for one or two shoeings, but not constantly, for there are few frogs that would bear the constant pressure of the bar-shoe; and the want of pressure on the heel generally occasioned by their use, would produce a softened and bulbous state of the heels, that would of itself be an inevitable source of lameness.

The cause of corn is a most important subject of inquiry, and which a careful examination of the foot and the shoe will easily discover. The cause being ascertained, the effect may, to a great extent, be afterward removed. Turning out to grass, after the horn is a little grown, first with a bar-shoe, and afterward with the shoe fettered on one side, or with tips, will often be serviceable. A horse that has once had corns to any considerable extent, should, at every shoeing, have the seat of the corn well pared out, and the butyr of antimony applied. The seated shoe should be used, with a web sufficiently thick to cover the place of the corn, and extending as far back as it can be made to do without injury to the frog.

Low, weak heels should be rarely touched with the knife, or anything more be done to them than lightly to rasp them, in order to give them a level surface. Where corns exist of any consequence, they are a disgrace to the smith, the groom, and to the owner.

THRUSH.

This is a discharge of offensive matter from the cleft of the frog. It is inflammation of the lower surface of the sensible frog, and during which pus is secreted together with or instead of horn. When the frog is in its sound state, the cleft sinks but a little way into it; but when it becomes contracted or otherwise diseased, it extends in length, and penetrates even to the sensible horn within, and through this unnaturally deepened fissure the thrushy discharge proceeds. A very full and fleshy state of the body may be a predisposing cause of thrush, but the immediate and grand cause is moisture. This should never be forgotten, for it will lead a great way toward the proper treatment of the disease. If the feet are habitually covered with any moist application—his standing so much on his own dung is a fair example—thrush will inevitably appear. It is caused by anything that interferes with the healthy structure and action of the frog. We find it in the hinder feet oftener and worse than in the fore, because in our stable management the hinder feet are too much exposed to the pernicious effects of the dung and the urine, moistening, or, as it were, macerating, and at the same time irritating them.

In the fore-feet, thrushes are usually connected with contraction. We have stated that they are both the cause and the effect of contraction. The pressure on the frog from the wiring in of the heels will produce pain and inflammation; and the inflammation, by the increased heat and suspended function of the part, will dispose to contraction. Horses of all ages, and in almost all situations, are subject to thrush. The unshod colt is frequently thus diseased.

Thrushes are not always accompanied by lameness. In a great many cases the appearance of the foot is scarcely or not at all altered, and the disease can only be detected by close examination, or the peculiar smell of the discharge. The frog may not appear to be rendered in the slightest degree tender by it, and therefore the horse may not be

considered by many as unsound. Every disease, however, should be considered as legal unsoundness, and especially a disease which, although not attended with present detriment, must not be neglected, for it will eventually injure and lame the horse.

The progress of a neglected thrush, although sometimes slow, is sure. The frog begins to contract in size—it becomes rough, ragged, brittle, tender—the discharge is more copious and more offensive—the horn gradually disappears—a mass of hardened mucus usurps its place—this easily peels off, and the sensible frog remains exposed—the horse cannot bear it to be touched—fungous granulations spring from it—they spread around—the sole becomes under-run, and canker steals over the greater part of the foot.

If a young colt, fat and full of blood, has a bad thrush, with much discharge, it will be prudent to accompany the attempt at cure by a dose of physic, or a course of diuretics. A few diuretics may not be injurious when we are endeavoring to dry up thrush in older horses.

There are many recipes to stop a running thrush. Almost every application of an astringent, but not of the too caustic nature, will have the effect. The common *Ægyptiacum* (vinegar boiled with honey and verdigris) is a good liniment; but the most effectual and the safest—drying up the discharge speedily, but not suddenly—is a paste composed of blue vitriol, tar and lard, in proportions according to the virulence of the canker. A pledget of tow, covered with it, should be introduced as deeply as possible, yet without force, into the cleft of the frog every night, and removed in the morning before the horse goes to work. Attention should at the same time, as in other diseases of the foot, be paid to the apparent cause of the complaint, and that cause should be carefully obviated or removed. Before the application of the paste, the frog should be examined, and every loose part of the horn or hardened discharge removed; and if much of the frog is then exposed, a larger and wider piece of tow, covered with the paste, may be placed over it, in addition to the pledget introduced into the cleft of the frog. It will be necessary to preserve the frog moist while the cure is in progress, and this may be done

by filling the feet with tow, covered by common stopping, or using the felt pad, likewise covered with it. Turning out would be prejudicial rather than of benefit to thrushy feet, except the dressing is continued, and the feet defended from moisture.

CANKER

Is a separation of the horn from the sensible part of the foot, and the sprouting of the fungous matter (proud flesh) instead of it, occupying a portion or even the whole of the sole and frog. It is the occasional consequence of bruise, puncture, corn, quittor and thrush, and is exceedingly difficult to cure. It is more frequently the consequence of neglected thrush than of any other disease of the foot, or rather it is thrush involving the frog, the bars and the sole, and making the foot in one mass of rank putrefaction.

It is often found in, and is almost peculiar to, the heavy breed of cart-horses, and partly resulting from constitutional predisposition. Horses with white legs and thick skins, and much hair upon their legs—the very character of many dray-horses—are subject to canker, especially if they have an attack of grease, or their heels are habitually thick and greasy. The disposition to canker is certainly hereditary.

Although canker is a disease most difficult to remove, it is easily prevented. Attention to the punctures to which these heavy horses, with their clubbed feet and brittle hoofs, are more than any others subject in shoeing, and to the bruises and treads on the coronet, to which, from their awkwardness and weight, they are so liable, and the greasy heels which a very slight degree of negligence will produce in them, and the stopping of the thrushes, which are so apt in them to run on to the separation of the horn from the sensible frog, will most materially lessen the number of cankered feet.

The cure of canker is the business of the veterinary surgeon, and a most painful and tedious business it is. The

principles on which he proceeds are, first of all, to remove the extraneous fungous growth; and for this purpose he will need the aid of the knife and the caustic, or the cautery, for he should cut away every portion of horn which is in the slightest degree separated from the sensible parts beneath. He will have to discourage the growth of fresh fungus, and to bring the foot into that state in which it will again secrete healthy horn. A slight and daily application of the chloride of antimony, and that not where the new horn is forming, but on the surface which continues to be diseased, and accompanied by as firm but equal pressure as can be made—the careful avoidance of the slightest degree of moisture—the horse being exercised or worked in the mill, or wherever the foot will not be exposed to wet, and that exercise adopted as early as possible, and even from the beginning, if the malady is confined to the sole and frog—these means will succeed, if the disease is capable of cure. It is proper to resort to neurotomy, if the means of cure are persisted in. Medicine is not of much avail in the cure of canker, but as it sometimes alternates with other diseases, a course of alternatives or diuretics may be administered, when the cure is nearly completed.

OSSIFICATION OF THE CARTILAGES.

The cartilages embedded in the heels of the feet from bruises, sprains, etc., are subject to inflammation, and the result of that inflammation is that the cartilages are absorbed, and bone substituted in their stead. This is common in heavy draught-horses, particularly as they are used on paved streets.

No evident inflammation of the foot, or great, or perhaps even perceptible lameness, accompanies this change; a mere slight degree of stiffness may have been observed, which, in a horse of more rapid pace, would have been lameness. Even when the change is completed, there is not in many cases anything more than a slight increase of stiffness, little or not at all interfering with the usefulness

of the horse. When this altered structure appears in the lighter horse, the lameness is more decided, and means should be taken to arrest the progress of the change. These are blisters or firing; but, after the parts have become bony, no operation will restore the cartilage. Some benefit, however, will be derived from the use of leather soles. Advantage has resulted from bar shoes in conjunction with leather.

Connected with ringbone the lameness may be very great.

WEAKNESS OF THE FOOT.

This is more accurately a bad formation than a disease; often, indeed, the result of disease, but in many instances the natural construction of the foot. The term weak foot is familiar to every horseman, and the consequence is too severely felt by all who have to do with horses. In the slanting of the crust from the coronet to the toe, a less angle is almost invariably formed, amounting probably to not more than forty instead of forty-five degrees; and, after the horse has been worked for one or two years the line is not straight, but a little indented or hollow, midway between the coronet and the toe. This has been described as the accompaniment of pumiced feet, but it is often seen in weak feet, that, although they might become pumiced by severity of work, do not otherwise have the sole convex. The crust is not only less oblique than it ought to be, but it has not the smooth even appearance of the good foot. The surface is sometimes irregularly roughened, but it is much oftener roughened in circles or rings. The form of the crust likewise presents too much the appearance of a cone; the bottom of the foot is unnaturally wide in proportion to the coronet; and the whole of the foot is generally but not always larger than it should be.

When the foot is lifted, it will often present a round and circular appearance, with a fullness of frog, and would mislead the inexperienced, and indeed be considered as almost the perfection of structure; but, being examined more

closely, many glaring defects will be seen. The sole is flat, and the smith finds that it will bear little or no paring. The bars are small in size. They are not cut away by the smith, but they can be scarcely said to have any existence. The heels are low, so low that the very coronet seems almost to touch the ground; and the crust, if examined, appears scarcely thick enough to hold the nails.

Horses with these feet can never stand much work. They will be subject to corns, to bruises of the sole, to convexity of the sole, to punctures in nailing, to breaking away of the crust, to inflammation of the foot, and to sprain and injury of the pastern and the fetlock and the flexor tendon.

These feet admit of little improvement. Shoeing as seldom as may be, and with a light yet wide concave web; little or no paring at the time of shoeing, and as little violent work as possible, and especially on rough roads, may protract for a long period the evil day, but he who buys a horse with these feet will sooner or later have cause to repent his bargain.

NOTE.—*Mode of Repairing Horses' Feet.*—Horses which stand nearly or quite the year round, sometimes from year to year in the stable, are apt to have the feet get into a dry and fevered condition; the hoof becomes dry, hard, and often contracted, frequently also very brittle, and the horse sometimes suffers lameness in consequence. Now one of the most effective means of remedying these difficulties, where the horse cannot be spared to be turned into pasture for quite a season, is in the spring, when the ground is breaking up, and the winter's frost disappearing, and no lasting freeze is to be apprehended, to have all of the shoes taken off and drive the horse daily about business, as usual, without them. The roads remain muddy and soft, usually, so that a horse may be thus driven daily for a period of three or four weeks, and a great improvement is effected in the feet in every respect. I have had a horse whose feet were fevered, hoof contracted, hard and brittle, thoroughly renovated or cured by a season of such usage. When the ground becomes hard, and the feet become too tender to drive longer, then have the shoes put on. This treatment of course would not be applicable on pavements, but throughout the country in all the northern states, it is. Although daily driving a horse, in the practice of medicine, of late years, I have never had shoes put on the hind feet except in the frozen part of the year, and the expense of shoeing is not only saved, but I find the horse equally as useful, and the feet all the better for the practice.—MEDICA, in Moore's Rural New Yorker.

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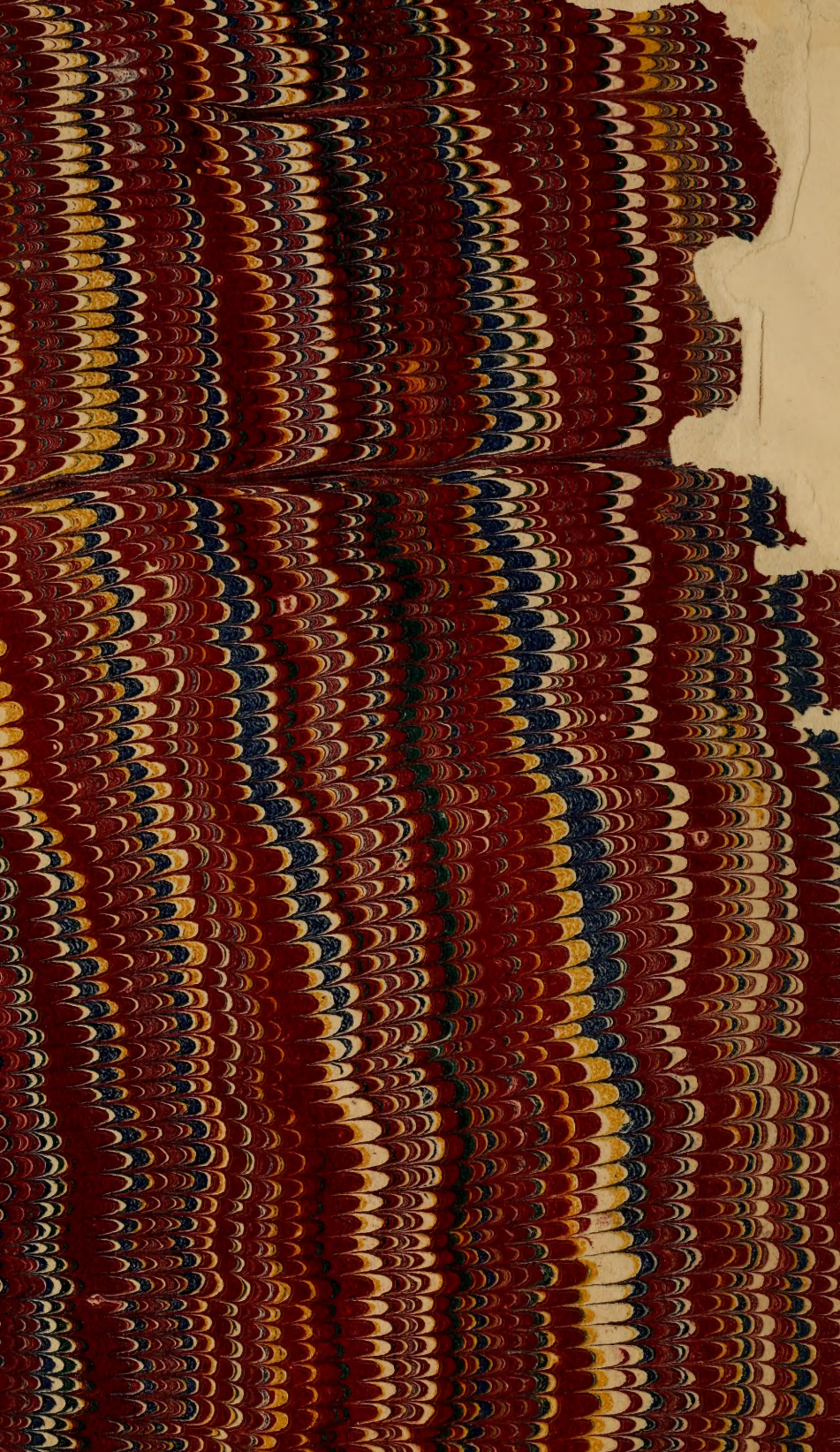
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